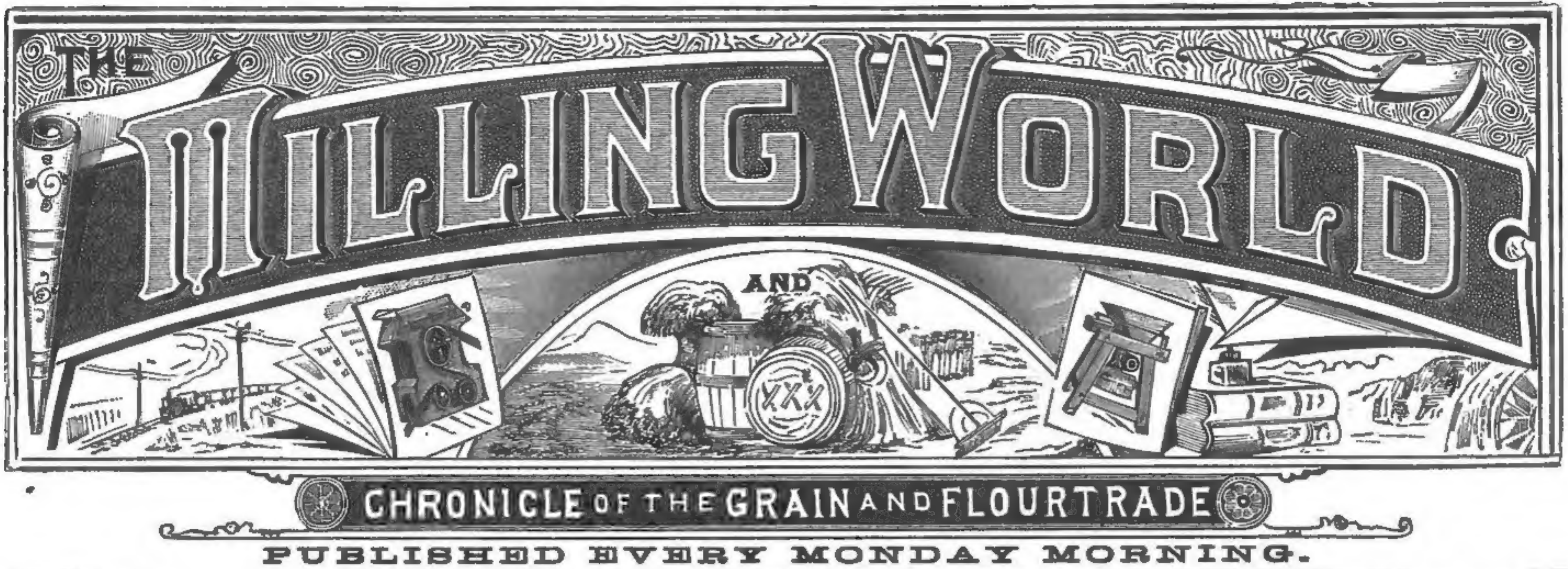


CASE.

CASE MFG. CO., COLUMBUS, O.
GENTLEMEN: If we were to build a hundred mills we
would not permit any other than the "CASE" roll to
enter them. They are the best roll on earth.
Yours truly,
W. C. MANSFIELD & CO.
CLEVELAND, TENN., AUG. 29, 1889.
W. C. MANSFIELD & CO.,
MERCHANT MILLERS,

CASE.



VOL. XXI. No. 4.

BUFFALO, N. Y., SEPTEMBER 23, 1889.

\$1.50 PER YEAR.

CANADIAN millers and farmers are at loggerheads over the question of how much flour the miller ought to give the farmer for a bushel of wheat. The question has never been permanently and satisfactorily settled anywhere, and it is not likely to be settled in Canada, where the citizens concerned are famed for disputatiousness and where wheat will always show its tendency to vary in weight and quality with succeeding seasons. The only way to settle the exchange question is to abolish the exchange practice.

NEW YORK is the only place for the great Columbus Fair in 1892. The fair will be held in New York, or it will probably be a miserable fiasco. No town far inland will answer. New York has the inside track for 1892. Let the preliminaries be settled as soon as possible, and then let the work go on rapidly. The time is short enough for thorough preparation. Buffalo waives all claims in favor of New York. The claims of all other towns are ridiculous, preposterous, indefensible, non-advocatable and quintessentially hebetudinous.

NIAGARA yet remains unharnessed, notwithstanding the remarkable showing of jim-crack mechanical contraptions designed to harness it shown at the Buffalo fair. Briefly summed up, the harnessing inventions exhibited were divisible into two classes; 1. The reasonable and practicable. 2. The unreasonable, the visionary and the wholly impracticable. The inventions of the first class were all old. The inventions of the second class were all useless, for one reason or other. The Niagara "harness" that draws the \$100,000 prize is yet to be invented.

NEWSPAPER growers of chin wheat, grain with the whiskers of antiquity upon it, are figuring out a 12,000,000-bushel wheat crop this year in Manitoba and Assiniboia. When it is remembered that these same guessers figured out a 20,000,000-bushel crop for Manitoba last year, while the wildest historians did not find 6,000,000 bushels to record when the crop was sold, it becomes an interesting problem to speculate on the amount that will probably be realized from the present estimated crop of 12,000,000 bushels. Not only are the Manitoba boomers in possession of a "bumper crop" so far as quantity is concerned, but they also announce that all, every kernel of it, grades No. 1! We confess complete staggerization at the Manitoba situation. We really hope Manitoba has a good crop of something besides chin wheat.

MANUFACTURERS of milling machinery made a mistake in not sending displays to the great fair which was held in this city this month. With one or two absolutely insignificant exceptions the great flour-making machinery line of the United States was unrepresented. It was a mistake for several reasons. The Buffalo fair was visited by nearly a half-million persons, and among them were hundreds of men interested in machinery devoted to the treatment of grain. They would have examined with keen interest all machines for cleaning, weighing, grading and grinding grain, and meritorious machines would have found sales on the spot. Next year this great industrial exposition will be repeated

on a larger scale, and the makers of flouring and grain-cleaning machinery should not let the opportunity pass unimproved.

JUDGING from the scores of letters we have received from millers in various states since the Milwaukee convention of the Millers' National Association, we do not think that organization stands any better to-day, under its new officers, in the estimation of the men who ought to be interested in it, than it stood a year ago. The officers claim an increase in membership, but we have good reasons to believe that the claim can not be proved by figures. The millers outside the association are displaying not the least anxiety to get in, and those inside the association appear to be unable to accomplish any thing of importance. The main trouble with the association seems to be the want of a broad plan, that shall make its action important to millers in all sections. There has been, beside that want, the deadening effect of bull-doing, narrow meanness, the use of the association to cater to private interests and to pay off personal spite, and other manifestations of puerility too numerous to mention. The result was visible at the Milwaukee convention. A new plan of campaign is needed even more than new men.

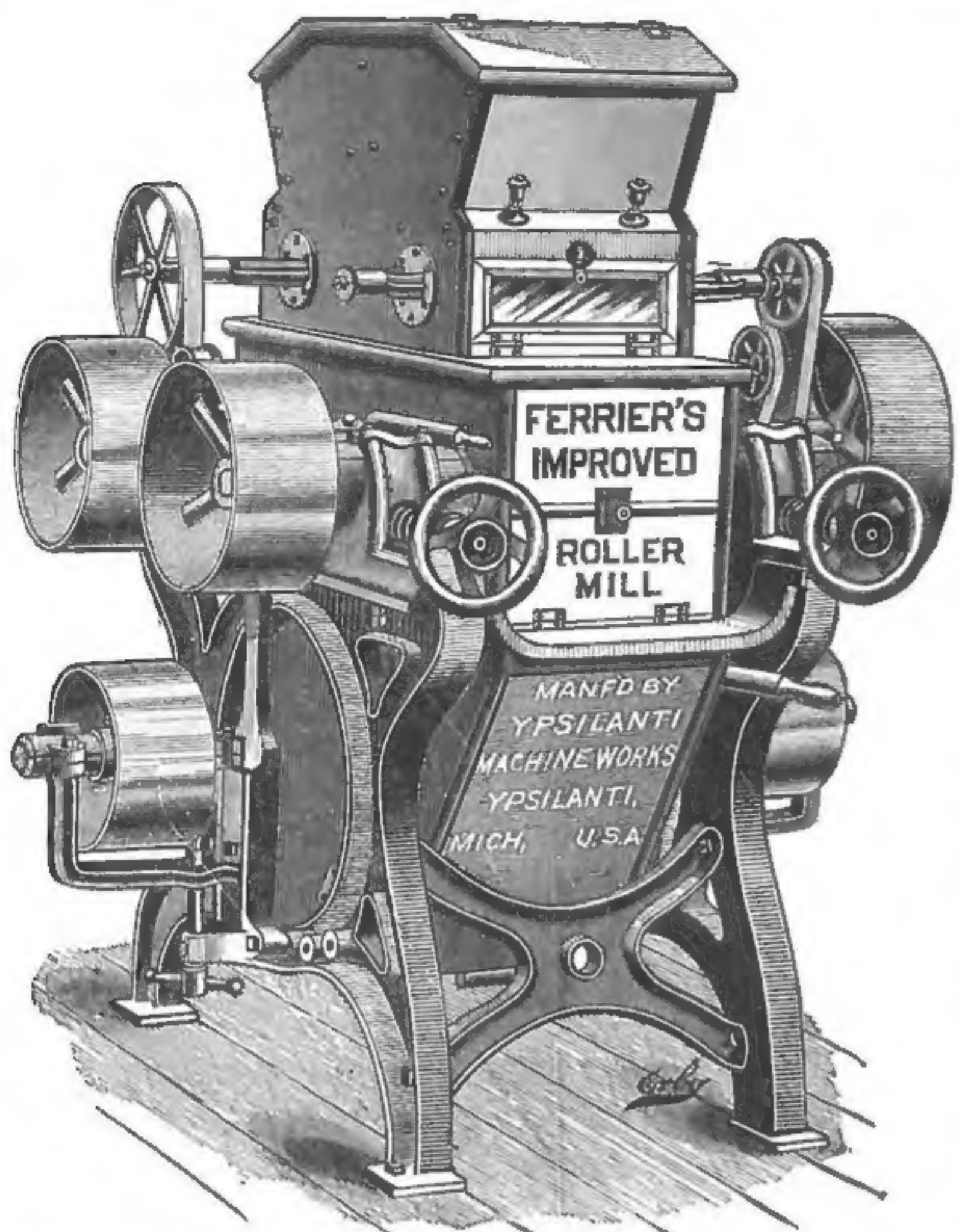
OFFICIAL figures of breadstuff exportations during August are very encouraging reading. They show an increase in wheat and wheat-flour exportations, while all other lines hold their own. The August export of wheat this year was 6,668,380 bushels, worth \$5,577,698, against 7,210,144 bushels, worth \$6,552,431 in August last year. For the first two months of this fiscal year the wheat exports were 9,909,775 bushels, worth \$8,406,961, against 10,582,767 bushels, worth \$9,453,200 last year for the same months. The wheat-flour exports in August were 1,018,737 barrels, worth \$4,962,645, against 874,962 barrels, worth \$3,894,696 in August last year. For the two months ended August 31 this year the wheat flour exports were 1,857,535 barrels, worth \$8,925,237, against 1,685,381 barrels, worth \$7,534,787 last year. The August export of barley was 65,521 bushels, against 27,744 bushels; corn 4,992,992 bushels, against 2,829,477 bushels; corn-meal 34,860 barrels, against 23,964 barrels; oats 294,372 bushels, against 32,926 bushels; oatmeal 964,030 pounds, against 131,184 pounds; rye 119,671 bushels, against 7,000 bushels. The value of the breadstuffs exported in August this year was \$13,169,752, against \$12,106,726 last year; for the two months ended August 31 this year \$22,976,697, against \$20,011,178; for the eight months ended August 31 this year \$80,206,406, against \$70,503,124 last year. Not only has there already been a gain in the situation, but there is a far brighter prospect for the coming months. The most pessimistic reports do not place the United States wheat crop at less than 470,000,000 bushels, and the most optimistic European reports have not raised the estimates of the European and Indian wheat totals. There is, therefore, a decided shortage in Europe and a decidedly large surplus in the United States. If the situation means any thing, it means a large wheat grain and flour trade for the United States with Europe during this year.

YPSILANTI MACHINE WORKS, YPSILANTI, MICH.

MILL BUILDERS

And Manufacturers of

FLOUR MILL MACHINERY



Sizes of Ferrier's Improved Four-
Roller Mills.

6x12	6x15	6x20
9x15	9x18	9x24

Dealers in Bolting Cloth. Walterhouse's Centrifugal; Walterhouse's Slow-Running Flour Dresser with Inside Cylinder; Plain Round Reels; Scalpers, Bolting Screens, Etc., Etc., Etc.

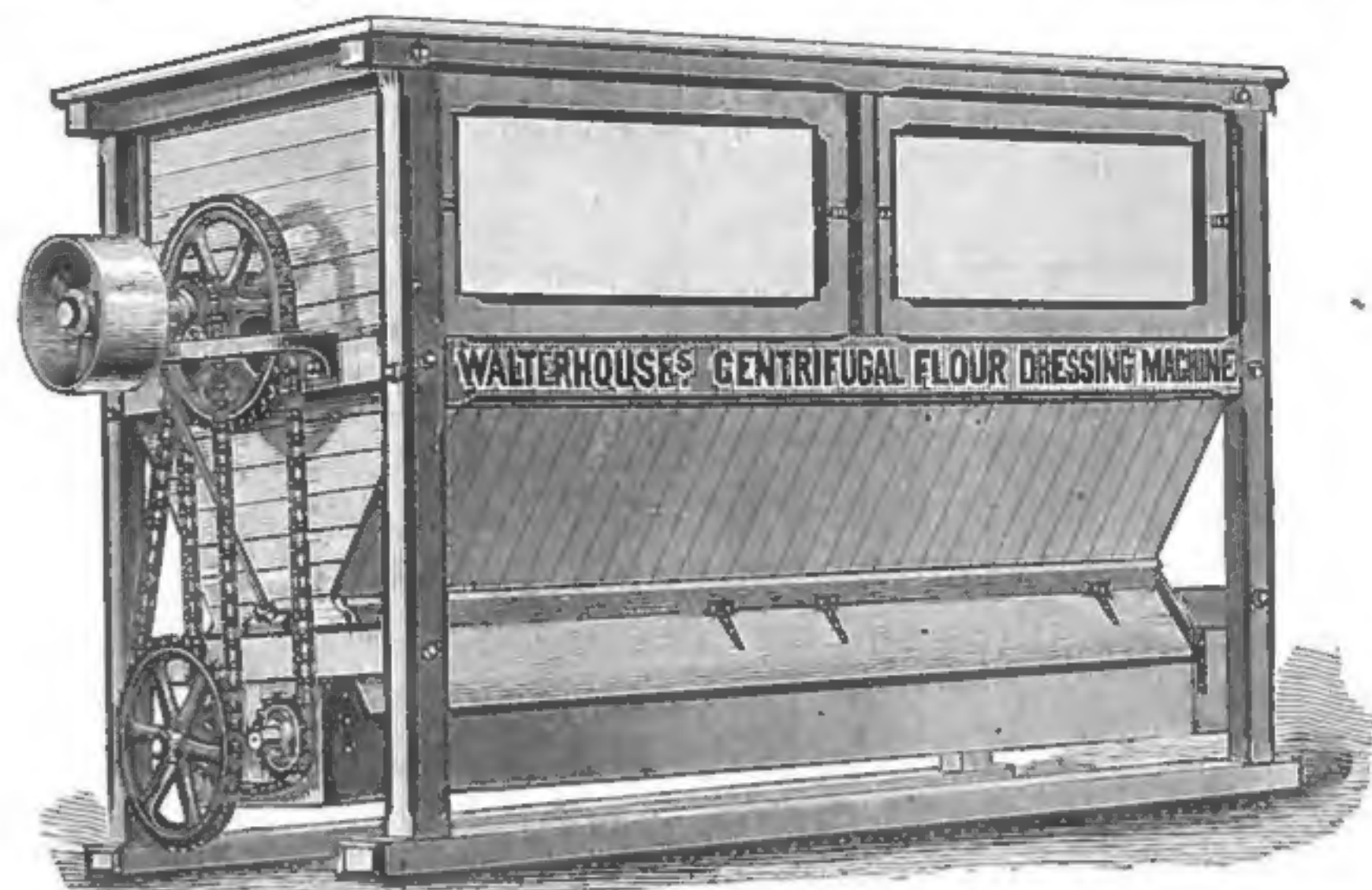
YPSILANTI MACHINE WORKS, YPSILANTI, MICH.

Gentlemen: We have had a line of your "Roller Mills" in use for over two years, and they have given entire satisfaction in every respect. They work like a charm, and their ease of adjustment and solid structure, together with the excellent finish you give them, can but recommend your machines to the milling public.

Yours respectfully,

A. R. DICKINSON & CO.

NASHVILLE, TENN., MAY 3, 1889.



JOHN ORFF, PROPRIETOR OF
EMPIRE FLOURING MILLS,
FORT WAYNE, IND., APRIL 10, 1889.

YPSILANTI MACHINE WORKS, YPSILANTI, MICH.

Gentlemen: The Centrifugal Reel bought from you some time ago is doing its work complete in every respect. It does a large amount of work, and does it well. Should we make further changes in bolting, shall use more of them. Wishing you success, we remain,

Respectfully,

JOHN ORFF.

OFFICE OF LEXINGTON MILL CO.,
LEXINGTON, MICH., JAN. 23, 1889.

To YPSILANTI MACHINE WORKS.

Gents: In reply to yours of June 5th, would say that we are well pleased with our mill. It has more than met our expectations. Although it was feared that the six-inch rolls would not prove a success, we find them to be complete in every respect. We are making as fine a flour as there is made in the state, and we guarantee our patent to be equal to Minnesota Patent. The mill has given us no trouble whatever since we started it, and for plan and workmanship, your Mr. G. Walterhouse deserves great credit. If your friends doubt it would be pleased to have them come and see for themselves.

Yours respectfully,

LEXINGTON MILL CO.

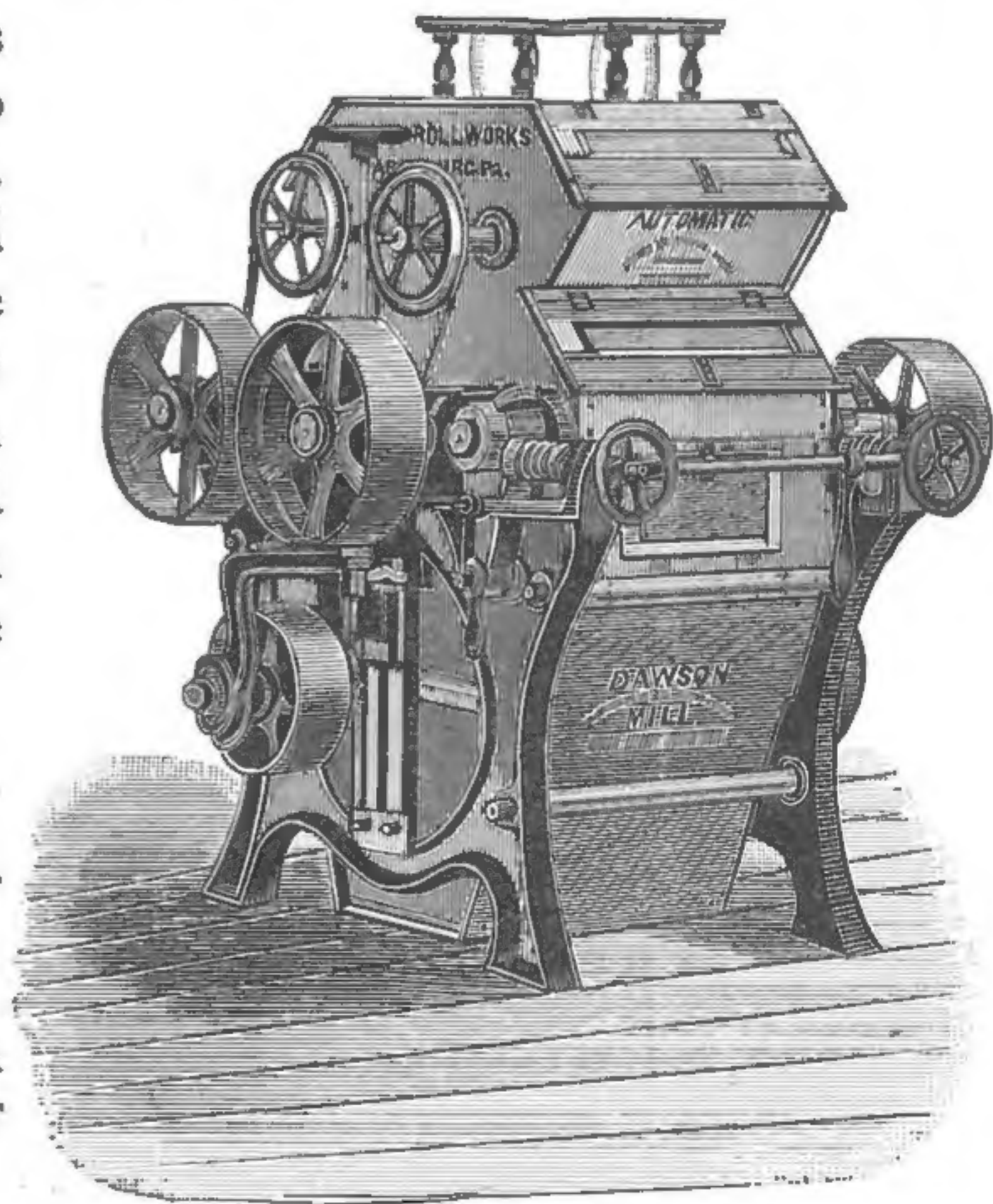
Dawson's Roller Mill

Is acknowledged to be the very best in the market. It has our Patent Automatic Centrifugal feeder, never failing to feed the stock the full length of rolls in an even sheet. It is the Latest and Best feed out, uses less power and is simple in construction. It can be placed on any style of machine with little expense. We use for roll bearings phosphor-bronze metal which will admit rolls being run at any speed without heating and with little friction, and uses little oil. We use the Dawson Corrugation, which is admitted the best in long or short system mills as the action is granulating rather than CUTTING.

We have a large plant to Re-grind and Re-Corrugate Rolls.

Owing to our late increased facilities and central location we are enabled to ship goods promptly on the shortest notice.

PARTIES CONTEMPLATING REMODELING THEIR MILLS OR BUYING ANY ROLLER MACHINES ARE REQUESTED TO PUT THEMSELVES IN CORRESPONDENCE WITH US.



FOR PRICE LISTS AND CIRCULARS, ADDRESS,

Dawson Roll Works, Harrisburg, Pa.



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Over Bank of Attica,
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS McFAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application.

Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD,
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

WANTED.

A situation with parties who appreciate good work, with rolls or buhrs, on patents. Have the following recommendation from Miller Bros., Forest Grove, Ore., dated Nov. 10, 1887: "To whom it may concern: This is to certify that Peter Provost has been in our employ as head miller, and has given entire satisfaction. We believe him to be a very competent man, and cheerfully recommend him to the milling public." State wages you wish to pay. Address, PETER PROVOST, Menominee, Mich. 21

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

WANTED.

A miller with some capital to help stock with, to take charge and run my mill. Address LOCK BOX 285, Clearfield, Clearfield county, Pa. 1720

FOR SALE.

Flour-mill, corn-mill and cotton-gin, in a new growing country, splendid for wheat. Good opening for a mill-man who understands the business. For particulars apply to W. J. MILLER & CO., Ballinger, Texas. 2023

FOR SALE.

Several good second-hand and new turbines of various styles. Second-hand price list and descriptive matter and prices of our new machines sent free. Every one interested in the shortest route to successful milling on rolls or in grinding corn and feed with the least expense of power, should address us before buying.

8tf FLENNIKEN TURBINE CO., Dubuque, Iowa.

MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.

One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.

One 14-Inch Vertical Feed Mill; best make, new, a bargain.

One No. 6 Dustless Separator; new, a bargain.

One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.

Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.

Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.

One No. 2 Purifier. New. Best make. A bargain.

For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

M-I-L-L-E-R-S

Wanting Bolting Cloths should write for discounts on same before purchasing elsewhere to

SAMUEL CAREY,
71 Broadway, New York.

DURING the month of August the fire-losses in the United States and Canada footed about \$11,200,000. The portion contributed by the flour-mill and allied industries was \$1,151,000. The total loss for the first eight months of 1889 was \$86,460,000, against \$88,025,000 in 1888 and \$85,245,000 in 1887. The fire moralizers may make their own comments and discounts.

THE fake grain-growing bugaboos are not the only bugaboos, created to affright American producers, that are collapsing. The great petroleum fake of Southern Russia is another. When the Russian wells were represented as gushing forth torrents, fountains, rivers and seas of fine petroleum, flooding with oil the country for thousands of square miles and blackening the skies of all Europe with vapors, word was sent to the American producers to plug up their wells, burn their derricks, sell their tanks and retire from business. That was two or three years ago. Now the situation is changed. Our esteemed London, England, cotemporary, "The Financial Times," of September 5 gives the following portrait in ink of the Russian petroleum bugaboo: "The petroleum wells of Southern Russia, which were going to revolutionize the trade in that particular commodity, seem to be drying up. The Consular reports from the Baku region are anything but satisfactory to those who have put their money into undertakings formed directly for the purpose of extracting petroleum, but indirectly for the purpose of extracting coin from investors." Thus the Russian petroleum bugaboo joins the Russian wheat bugaboo in the long procession forever wending its weary way to limbo.

HOLDERS of actual wheat in the United States this year should not be misled by the antics of the wheat gamblers into selling off at too low a figure, as they have so often done in times gone by. It is astonishing that the wheat-owners have not yet taken the first step towards throwing off the destructive thrall of the gamblers, and it seems as though the near future must bring some change in the relations between the grain-growers and the grain-gamblers. Under the present relations the growers simply stand and wait for the gamblers to frighten them into selling at any price. They dump their grain upon the market and instantly and forever lose all control of it. Suppose there were a concerted action among the growers, by which supply was kept simply equal to or a little short of demand, what would become of the gamblers then? Is such action by the growers impossible? It ought not to be. It ought to be possible. It is the general complaint that the gamblers hurt all persons interested in grain and flour, the millers as badly as the growers and the consumers. It is time for grain-growers to follow the example of other great lines and combine to secure the profits to which they are justly entitled, which now go to the gamblers or are totally wasted by the gamblers.

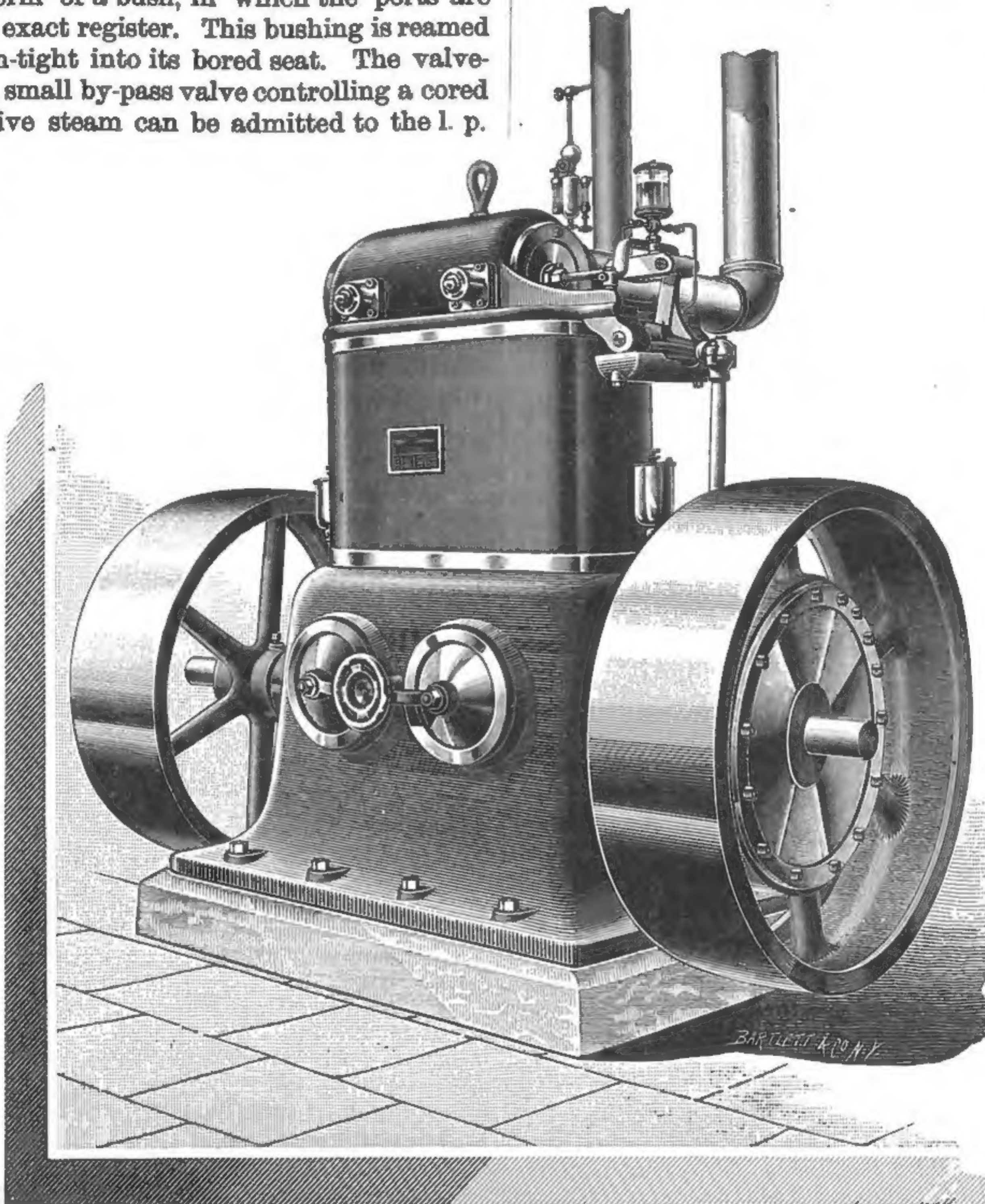
"It is only a question of time, and a brief time at that, when our exports will be loaded on ship at Duluth, the Soo, Chicago and lake ports, not to be transferred until they reach England, and the more interstate and prohibitory legislation there shall be, the tighter the bands which the East shall seek to fasten about the West, the quicker will the latter find her way to this final end. She is a giantess and only needs to realize and exert her strength in order to put to utter scorn all attempts of her old-time master to further control her." Whoopee! Minneapolis flapdoodle on tap again! The skies ripped open, the planets hurled away from sight, the oceans mopped up, the earthquakes swatted across the mouth, the laws of gravitation pied and the universe incontinently discombobulated by the marvelous Minneapolis milling morologist? What is to be "the final end"? Let Minneapolis locate also the initial end, and meanwhile, let the human race stand from under while the gigantic Minneapolis intellect paints the dreadful things he will accomplish in case the naughty East tries "to further control" the "giantess" West! Neighbors, don't you hear the earth crack? Minneapolis is on the rampage, and he is going to send "our exports" by ship overland to England, and that's what's the matter with Minneapolis!

THE WESTINGHOUSE COMPOUND ENGINE.

Users of steam-engines will be greatly interested in the "Compound" automatic engine illustrated herewith. It is one of the famous engines manufactured by the Westinghouse Machine Company, of Pittsburgh, Pa. Our readers, who are already familiar with the Westinghouse "Junior" and "Standard" engines, will easily understand the readiness with which this type of engine lends itself to compounding. In general form the "Compound" engine more nearly resembles the "Junior" engine. The mechanical characteristics of the single-acting engine are retained in every particular. Following is a general description abridged from the catalogue of the firm: One cylinder is enlarged to practically $3\frac{1}{2}$ times the area of the other. The valve chest is across the top of the cylinders and is one piece, the various steam-passages being chambered in it. The valve-seat is in the form of a bush, in which the ports are cut—not cast—to an exact register. This bushing is reamed out and forced steam-tight into its bored seat. The valve-chest also contains a small by-pass valve controlling a cored passage, by which live steam can be admitted to the l. p. cylinder to turn the engine over its center when starting. The steam and exhaust connections are on the side of the valve-chest towards the back of the engine. On the front of the valve-chest are two spring water-relief valves of large area and having soft-metal seats. These valves are adjustable to any pressure while running and practically insure the engine against damage from water. The back valve-chest head can be removed and the condition of the valve inspected while running. The single stuffing-box on the engine is in the front valve-chest head and packs against exhaust steam only. We retain the ever-reliable piston-valve, than which nothing could be more satisfactory in the essentials of balance, tightness and wear. Each head is packed with two rings, the space between the heads forming a determined clearance which is constantly in communication with and a part of the h. p. cylinder, but is periodically cut off from the l. p. cylinder. The lead of the valve is adjusted by removing the key and screwing the stem in or out half a turn at a time. The adjustments are all made in our test-room. By gripping the valve lightly at the back end only, there is no chance for it to "cock" and wear unduly in consequence. The valve is actuated by a single eccentric controlled by a shaft governor embodying our latest knowledge of proportion. Recognizing the great practical value of a constant and profuse lubrication of the governor as exemplified in the "Standard" engine, we have enclosed all the parts of the governor in a case which is filled with oil when the engine is first set up, and it requires no further attention for an indefinite period. All the pin bearings of the rocker-arm are of steel working in long bronze bushings. The lubrica-

tion of all the pin connections and of the eccentric itself is automatically performed by a sight-feed cup carried on a yoke over the rocker-arm. The governor-case also forms a center for one band-wheel. These cases are turned up to a uniform diameter by gauge on the outside. This plan enables us to carry out our system of manufacture. The engine is tested with one fly-wheel. The governor-case cover can be removed without disturbing the wheel rim. The other end of the shaft carries an ordinary band-wheel or combination wheel as each order requires. Sufficient length is left for a coupling on each end when desired. Returning to the cylinders, their simplicity will be noted; two plain tubes with flanges, cast in one piece. This again avoids the chances for hidden defects in a complicated casting. Not content with this, however, each pair of cylinders, after being bored out, is clamped between two special face-plates in the test-room,

through one of which passes a pipe from the boiler. High-pressure steam is then turned into the cylinders, sometimes revealing a porous casting not to be detected by any other means. If defective in the slightest degree, the casting is broken up. The cylinders are bolted to both the crank-case and the steam-chest by studs, the nuts of which are concealed under the jacket. All further desired information may be obtained by addressing the Westinghouse Machine Company.



THE WESTINGHOUSE "COMPOUND" AUTOMATIC ENGINE.

POINTS IN MILLING.

ENGLISH milling practices are evidently not much more nearly uniform than American practices. Any given point seems to find about as many disputants pro and con in England as in the United States. The London "Miller" publishes regularly

a list of prize questions and answers to the same, some of which are entertaining mainly because they show the variations in English milling ideas. One of the recent questions was: "On a six-break plant, would you run the product from each break together? If not, why not? Which would you run together, and how treat?"

To this question, or these questions, a "medalist" replies: "Not all the break products should run together, because only the first four will yield clean semolina; the last two breaks are necessarily set close to clean the bran, and the production of bran-powder is therefore certain. This mixed with the earlier break products must lower the average of color, therefore it is the better policy to treat these latter products separately; such flour as they produce can thus be graded according to its worth. The first four runs of semolina may be run on a rotary sieve covered with zinc equaling No. 40 G. G. The coarse semolina passes over dustless and may be fed at once to gravity purifier. The outsiftings

may be next dusted on a centrifugal dresser covered with 10 and 11 Swiss silk; the break-flour is here separated while the middlings pass away to be purified on sieve-purifier. If desired the centrifugal could grade for two or more purifiers by putting sheets of grading numbers after the flour had been removed. The two last-break products may be scalped over 24 wire to remove bran, then sifted or dressed on No 40 wire, or zinc equaling that, the tails to rollers, out-siftings to centrifugal clothed with 10 or 11 Swiss. This removes flour and leaves low-class material for smooth rollers, or, as is sometimes the practice, to purify."

ANOTHER miller, also a "prizeman," answers as follows: "On a six-break plant I would run second, third and fourth break semolina together only, as I should then have the best, and send this direct to purifier. Each break-scalper should have its accompanying break-meal scalper. I should send the second-break meal to be dressed alone and treat third and fourth together. If wheat is well cleaned and good exhaust attached to first-break scalper, semolina in small plants might join the other; otherwise to first germ-roll, along with over-tails of semolina purifier. Fifth and sixth break scalper out-siftings I should send together to re-dresser, flour from which to low grade, dust to a finishing-roll, tails to tailings-purifier."

ANOTHER point in the examinations was the following: "Describe the important points of a first-class centrifugal flour-dresser, and a sieve-purifier."

THE "medalist" replies to this as follows: "Centrifugal Dresser.—Length of frame suited to capacity of mill. Diameter of dressing-frame not to exceed 30 inches or less than 18 inches. Materials used in construction of the best, moving parts in particular; wood well seasoned to avoid warping. The shape of reel to be round if for sectional frame cover, eight or ten-sided if cover to be laced on. To have not more than ten beaters set 2 inches from silk. A screw-feed arrangement. Either gearing or chain tackle to connect reel to beaters. Double conveyors, spiral, reversible by geared wheels. A spiral brush to run at option of attendant. Ventilating spout over the silk reel connected to exhaust-fan. Dividing boards to cut various products sharply. Step-pulley to allow use of at least two speeds, say 200 and 250. Sieve Purifier.—Well made sieve-frame with silk-stretching device. Provision for readily removing or replacing cover. Brush beneath silk to operate slowly and continuously. Separate valves to each section of cover. Main valves to control inlet to fan. Cone-pulley to fan, allowing at least two speeds to suit varying feed. Suspenders to frame of silk easily and accurately adjustable. A well-made fan of diameter and width equal to work required. Free inlet for air all round the machine. Controllable feed arrangement, permitting an even flow. Double conveyors for cut-off. Catch troughs over the sieve at least within 6 inches of silk surface. Device for readily removing these troughs. Arrangement for cleaning them automatically and with certainty. Spouts to carry off all separate products. A self-contained dust-collecting device. Generally all parts so made as to be under efficient control and accessible."

THE prizeman replies as follows: The important points in a first-class centrifugal are: 1. A good worm-feed inlet so as to avoid excessive draught from beaters. 2. It should be driven with a proper differential betwixt cylinder and beaters. 3. It should have strong but light, well-balanced centers and beaters, the latter fixed at such an angle or tangent from the circle of the silk-cylinder as to cause as little draught as possible and beat out the material at right angles to the mesh of silk. 4. The delivery should be of ample size to avoid stoppages. 5. Bearings should all be accessible so as to be easily oiled. 6. Two screws should be provided so as to facilitate a return or cut-off. In a purifier the good and important points are: 1. Accessibility in all points. 2. A good automatic feed. 3. A level sieve with adjustable suspenders to regulate the flow of the material. 4. Good

and even eccentrics. 5. Valves and division boards for regulating draught on each number of silk. 6. Brush or arrangement for keeping silk clean. 7. Intercepting contrivance formed in the expansion chamber. 8. Easy interchanging and tightening of silk device. 9. Double conveyor and tails aspiration. If the machine is kept steady it should be capable of making the best results on any kind of stock.

AUTOMATIC milling receives the following attention from the "prizeman": "The reasons in favor of automatic milling are: It facilitates methods of calculating results, saves labor, makes it possible to produce a regular 'straight grade' of flour, requires less skill and judgment on part of operatives. Against automatic milling the prime cost of a non-automatic plant is so much less. Wheat of different natures receive much the same handling, while in a non-automatic plant they can be varied more. Greater height of building is required, hence more danger from fire. Less average percentage can be produced than in non-automatic, as small motors can not be used as they can with other methods."

LEARNING BY EXPERIENCE.

A. B. SALOM.

Experience is teaching the men of the United States wisdom. There is perceptible everywhere a change in sentiment on many important points in the problem of the relations of labor to capital, of employed to employers, of the individual to the community. Men on all sides of each question are plainly becoming more tolerant. There is a noticeable subsidence in the fever of agitation, denunciation, striking and boycotting. The course of events during the present season proves this. Capitalists have learned that the best thing for them to do is to treat labor as liberally as possible, and this they are generally found to be doing. Experience has shown them that they gain nothing by resisting reasonable demands made by the men in their employ. They are showing themselves willing to go half way to meet laborers and to counsel with them amicably and equitably on all points that need adjustment. They do not show the least desire, as a class, to use harshly or insolently the advantage of their possession of wealth in contests with the men whom they employ.

On the other hand, laborers have learned, by bitter defeats, irretrievable losses of time, position, wages, bread and public sympathy, repeated again and again causelessly and unreasonably, that the theories on which they were acting were illogical, despotic and self-defeating. They have hurled labor against labor's ally, capital, in a hostile spirit, and time and again they have lost, and the wisdom they have acquired will prevent foolish losses in the same way in the future. Through arson, riot, murder, boycotting and other forms of criminality they have alienated from labor as an element, from laborers as a class of men, the public sympathy that naturally goes with labor and laborers at the start. They have apparently learned that suicide is not progress or victory. They have learned that labor is stronger when it appeals to reason than when it arms itself and resorts to illegality, stronger when it uses common-sense instrumentalities, protest, argument, arbitration, than when it assumes the form of brutal mobocracy. The acquisition of this wisdom is profitable to both labor and capital. It makes labor stronger, because contending fairly, honorably and commendably with the weapons of reasonable men. It makes capital more liberal, because appealed to in a more manly, direct and honorable way. Wisdom brings in this instance a double benefit. So far has organized labor advanced in the acquisition of valuable knowledge that the head of one of the most important labor organizations, the Brotherhood of Locomotive Engineers, recently publicly and emphatically declared that, under no conceivable circumstances, would he ever again sanction a strike.

Labor needs to learn and is learning other things. One of the most important of these things is the position of labor toward itself. In this direction there is much to be learned. For example, in the matter of training labor in the United

States to keep the supply equal to the demand labor has a great lesson to learn. It has to learn that its position on the apprenticeship question is wholly wrong, dangerous, mischievous, suicidal. To-day American labor forbids virtually apprenticeship to American youth. That prohibition is contrary to the spirit of American institutions. For that reason labor should not enforce it. Beside that, it entails upon labor just the sort of competition which labor aims to avoid by it, that is, competition with other lands in which labor is less liberally paid than in the United States. American youth trained to supply the demand for labor would unite to keep up wages. Foreign men, imported to fill the demand, generally are willing to take, and generally do take, wages below the rates prevailing here. American labor is thus directly responsible for whatever loss of wages it may suffer through the importation of trained workers. It may require years of bitter failure to teach labor its plain duty on this particular point, but there are signs that the more intelligent leaders of the labor movement already favor a retreat from the present unpatriotic, unbusinesslike, unreasonable, unprofitable and utterly suicidal position on the apprenticeship question now occupied by American labor. They understand that, so long as the shops, mills, foundries, factories and technical schools of Europe are graduating thousands of thousands of laborers, and so long as those laborers can come into the United States at will, it is folly to forbid American youth to learn skilled trades. When that idea once filters from the leaders to the rank and file, the embargo on apprenticeship will be removed promptly and thoroughly.

Again, all men, whether laborers or employers, have learned the hollowness of many of the pet cries of the professional agitators. It may wound the feelings of the howling lunatics of every sort to know that the sheet-iron character of their thunder is perfectly appreciated by every person except their co-lunatics, but that is the truth. These frothing demagogues, who have never been able to manage their own affairs and yet feel able to manage the universe, are falling to the rear. By the common consent at all fair-minded and intelligent men, who have studied the past and present conditions of labor, the fanatics, whose sole stock in trade is rant about trusts, pools and rings, are an evil of so small magnitude that all danger from them is past, because the laborers, whom they aim to mislead, and from whom they desire to draw an unearned living, have come to understand their true nature. It is a liberal education to a laborer to be able to laugh at the frothing crank who tries to make him believe that every thing he does is right because he does it, and that labor should overthrow the social and commercial fabrics of the age in order to secure the rights of labor. It is safe to assert that labor is fast acquiring that education in these days.

Agitation will go on. It will be less violent, but more powerful, because it is coming to be legal, equitable, common-sense, instead of criminal, dishonest, insane. There will be halts, but they will be shorter, and the subsequent progress will be more rapid. Labor as an element is taking rank with the best elements in the land. It is evolving from lawlessness and incoherency to a plane of honesty, intelligence and advancement. Reason is asserting its sway. The demagogues are losing their influence. Taught by experience, American labor move and capital are preparing to hand-in-hand to the conquest of the world.

TURNING POINTS IN SCIENTIFIC MILLING.

Following is a paper read before the recent Paris convention of the National Association of British and Irish Millers by Mr. J. Murray Case, of Columbus, Ohio, who is now living in France: "In this paper I shall not presume to present any thing new, but only to point out some of the essential rules in successful milling. The money value of the product daily passing through a mill of ordinary capacity is so great that seemingly insignificant matters become instrumental in making the successful or the unsuccessful mill. A mill having a capacity for turning out £500 worth of flour daily, if a profit of 2 per cent. is realized on the out-

put, will yield, in round numbers, £3,000 annually; 2 per cent. margin is not excessive, yet, if by some small imperfection in the details of the mill the percentage on the profit side is reduced by the figure 4, and the mill loses £3,000, the amount will appear quite large, for no miller cares to pay £3,000 annually for the glory of operating an unsuccessful mill. I give this illustration to emphasize my point, which is the necessity for close attention to minor details or the turning points in scientific milling. There are some fundamental principles in roller-milling of such vital importance that the changing of one spout and the delivery of the material from that spout to the right place or the wrong place will either make the mill profitable or unprofitable. It is no unfrequent occurrence for a milling expert to make changes in the mode of dealing with some special product, representing a cost of some £2, which makes many hundreds of pounds profit in the aggregate results of that mill during the year, and, in fact, produces such a revolution as to change the mill from an unsuccessful to a successful one. If this be conceded, and I dare say no thoroughly informed milling expert will deny it, then how vitally important to the mill-owner these minor points become.

"In a short essay I can only touch upon them briefly, but I give five essential rules: 1. Make the reductions with special reference to broad bran, small amount of chipped wheat, large percentage of semolina and least abrasion of bran possible. 2. Make the separation so that there shall be no return of material from the tail towards the head of the mill. 3. Never permit granular stock to reach the tail of the mill or become intermingled with low-grade products. 4. Make a separation of impure materials at every possible point and send it to low-grade stock or the feed-bin. 5. Select your machines with special reference to the work to be done, and see that they are kept in perfect order. These five rules embody the essence of scientific roller-milling, assuming, of course, that the wheat has been well cleaned, which is a matter of vital importance.

"In relation to the first rule, the reduction of wheat to semolina, there exists a great diversity of opinion as to the best plan. The tendency is in the direction of a less number of breaks and to a more extended length of roll surface on each break. This matter of rapid reduction at the head of the mill has many advantages; it produces a much higher grade of break-flour, and, if the corrugations are properly adapted to each break, there is also an equal or larger quantity of semolina produced, and a broader bran. When partly broken wheat is passed successfully through corrugated rolls, as in the extended reduction system, and only gently operated upon, there is a gentle scraping of the bran, which produces a bran-dust, which, on account of its extreme fineness, passes the meshes of the silk along with the flour and thus discolors it. If, on the other hand, we perform a large percentage of the work of reduction at the head of the mill, instead of producing this fine bran fiber that will bolt, we are producing a coarse bran scale that will not bolt, and herein lies the principal advantage of rapid reduction.

"To illustrate this more clearly, as it is an important point, I would say that if you take a knife and scrape a wheat berry three or four times gently, you will find bran powder produced so fine that it will bolt with the flour. Then instead of three gentle scrapings, make one severe scrape, and you will find a bran scale produced that will not bolt with the flour. With this material advantage in favor of rapid reduction, if other favorable conditions can at the same time be sustained, it is unquestionably the superior system. I think it can be proved that four reductions, with adequate length of roll surface and proper main-break corrugation, is sufficient for any kind or condition of wheat, and that as large a quantity of semolina will be produced, a better break-flour, and, at the same time, a broader and fully as well-cleaned bran. If this be true then the matter of the number of breaks becomes one of the points in successful milling. In making this statement of the number of breaks, I do not take into account the wheat-splitting machine, if used, as that can only be regarded a wheat-cleaner.

"The second rule, 'make no returns,' is of vital importance. It not unfrequently happens that some material, rich in flour but intermingled with impure stock, is passing off at some point in the mill. The miller thinks it too good to go to low-grade or feed and therefore sends it back to the break-chop or some point ahead in the mill, but while this may reduce the quantity of low-grade and also make a cleaner offal, yet, at the same time, it will reduce the value of the flour, sometimes from 2 shilling to 4 shilling per sack. But suppose it reduces it but 1 shilling, in a plant of 300 sacks we have a loss of £15 per day, or £4,500 per year. One spout is doing this disastrous business. The milling engineer having left his newly constructed mill in good condition and running well, it not unfrequently happens that after a time the rolls get out of trim, the bolts more or less filled up, and machines generally not doing their work properly for want of adjustment and attention; then these rich tailings appear, and the miller shoots them back into the break-chop or to some roll or bolt in advance, and thus loads the mill with impure stock, which is wallowed back and forth until it is sufficiently reduced to bolt with the flour. In all cases where there is a rich product either passing into feed or into low-grade stock, if the mill, when in good running condition, will not handle it properly, the mill-owner should put in the necessary machinery to do so. Sometimes an extra roll and bolt will pay for themselves half-a-dozen times over in the course of a year in the matter of making a clean finish and preventing returns.

"The third rule, 'Do not let granular stock reach the tail of the mill,' is of almost equal importance. This rule is violated more than any other and costs the millers of Europe and America a fabulous sum of money annually. It is not unfrequently the case that inexperienced milling experts (?) so diagram the mill that a large quantity of fine semolina reaches the tail of the mill and becomes intermingled with the low-grade stock. That which ought to be patent flour either goes into low-grade or feed, generally a large percentage of it into the latter, since fine semolina will not grind well with second germ-stock or bran fiber. The woody substances hold the rolls apart so that the fine semolina is not reduced and hence tails off to feed. The mill should be so diagrammed that it would be impossible for fine semolina to reach the tail of the mill. This can only be done by the proper numbers of cloth and a sufficiency of smooth roller surface to insure perfect reduction. I am an advocate of a short system at the head of the mill, but a proportionately elongated one at the tail. By this means the quantity of low-grade flour can be materially decreased and a perfect finish of the offal secured, and in many cases I would change a part of the corrugated rolls into smooth rolls and the extra break-scalpers into separating-reels, and thus greatly improve the general results without additional machines.

"The fourth rule given, that is, 'To separate the pure from impure stocks at every point possible,' is also important. Milling reduced to a science is simply an extended system of separating. When a reel, or purifier, or any other machine can be made to tail off a deleterious material, it should be done at once, and this material sent to the low-grade rolls or feed instead of carrying it through a successive number of rolls and reels, which is often done. Neither is it advisable to wallow semolina around through half-a-dozen grading reels, elevators and dusters, which is sometimes done to the great detriment of the general results. The aim should be to get every stock to its legitimate place and the flour to the sack as soon as it can possibly be done, thus saving the continued abrasion and intermingling of impure stock with the pure in such a condition that it can not be separated. In relation to the machines to be used, I am not here to advocate any special make. Every engineering firm of respectability in the milling line is making good machines, but it often occurs that they are not arranged in a manner to produce the best results. The centrifugal reel is a machine of recognized merit, yet it may be used where it should not be, or where some other bolting-machine would be better. A perfectly equipped mill is one that possesses a specially constructed machine for each description of work,

and each machine should be so arranged with regard to the others that no one of them should have either too much or too little to do. It is as great a mistake to have a bolt or purifier operate upon too small a quantity as it is to charge them beyond their capacity; in either case it is vain to look for satisfactory results. This, I need scarcely point out to you, applies to the whole of the machines. A mill, in short, should resemble in its operation the organic action of a healthy human body, wherein each organ discharges its special function, each is dependent upon the other, and the whole co-operate in producing that just balance of the system which is so essential to the maintenance of good health.

"I may be permitted to mention one machine which, so far, has not been introduced very extensively to European millers, and that is the 'Inter-Elevator Bolt.' This style of reel is now being made by every prominent American milling-engineer, and no milling-machine in America has ever met with such universal favor. As a separating-machine on the break-chop and the dusting of semolina it is unquestionably superior to any other class of reel. It is gentle in its action and has a capacity almost equal to the centrifugal. It is used in America for all purposes except the dressing of low-grade material, for which purpose the centrifugal is still in request. Now, in relation to the operation of a mill, I shall assume that every miller in Great Britain and on the Continent is a good miller and that each attends to his duties properly, although I have known some millers who do not. I have seen purifiers running with a thick stream of semolina down the center, the cloth bare on each side and tailing off 'rich' to low-grade, and I have said, 'There goes the two per cent. margin.' I have seen rolls running with a feed half-way across in a thick stream and chopping the bran up, and the semolina rolls in the same condition, and stock going through unground, and I have said, 'There goes the two per cent. loss.' I have seen in the same mill bolts clogged up until they tailed over one-fourth of their stock to the low-grade department of the mill, and I have said, 'There goes enough good material into low-grade flour and feed to "break" this miller in six months.'

"You have no such millers on this side of the water, I am sure, but it would be well if the intelligent European mill-owner should study these points and measure the importance of employing first-class talent to operate his mill. The miller is a most important financial personage to his employer; he is lending out, so to speak, often several hundred pounds of the mill-owner's money daily, and the interest received upon it or the interest paid upon it will depend largely upon his efficiency. Furthermore, the mill-owner, in order properly to direct these 'turning points' in his favor, should know every part of the mechanical operation of his mill; and he should not only know this but he should 'dob' his hands up in dough frequently. It won't hurt them; the dough will wash off and the hands be whiter for the 'dob', and probably the flour whiter, too, the next day, for the miller will then know that his employer has got a practical eye on him, and he will put forth every effort to excel."

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GENERAL NOTES.

THE London docks, brought into notice because of the great strike there, are said to have cost not less than the enormous sum of \$100,000,000. St. Katherine's docks, the nearest to London bridge, were opened in 1828 and cost \$10,000,000. London docks are still older, having been opened in 1805. They cost \$20,000,000 and contain the great warehouses for tobacco rented by the government. The Surrey docks and Commercial docks are more spacious and devoted to the grain shipping trade. The West India docks, opened in 1802, cover 300 acres, and the East India docks 32 acres. Millwall docks, in the Isle of Dogs, cover 200 acres. But the great docks are the Victoria and Albert, opened respectively in 1856 and 1880. The Victoria docks cover 200 acres and contain dry-docks capable of docking the largest steamships afloat. One set of warehouses, used chiefly for storing tea, silk, cochineal, carpets and other products of India and China, is said to have continuously a stock valued at \$25,000,000. The Royal Albert dock, which is connected with the Victoria, is the greatest of all, and its completion in June, 1880, was made the occasion for a royal celebration. This dock is a splendid stretch of water-way almost three miles in extent, with a range of over a mile of iron warehouses and double lines of locomotive tracks and numerous traveling cranes. The aggregate length of dock and passage walls is 3½ miles. The walls are 40 feet high, five feet thick at the top, and from 18 to 19 feet thick at the base, and used up in their construction 500,000 cubic yards of concrete, representing 80,000 tons of Portland cement. Three thousand workmen, 600 or 700 wagons, 17 or 18 locomotive engines, three steam "navvies," and a great quantity of minor machinery of various kinds had been engaged from 1875 until the summer of 1880 in the construction of this magnificent system of docks. Railway trains from every company can unload straight into vessels, cattle are driven aboard, the railway platforms being level with the receiving decks, and the largest possible weights of merchandise are lifted by hydraulic cranes that travel from shed to shed with singular facility.

ENGLISH VIEWS OF THE SITUATION.

Concerning the recent large investments of British capital in American industries the London, England, "Iron and

Coal Trades Review" says: "From New York comes the rumor of still further investments in American industries by British capitalists. The latest purchase, we are informed, is one of the prominent iron-works in the country which has always paid its owners a good dividend. This extreme eagerness on the part of British capitalists to secure possession of industries, which we are constantly told would come to grief immediately if they were not bolstered up by a high protective tariff, is a curious sign of the times and affords much food for reflection. The inferences to be drawn from the peculiar development of British capitalists are two-fold: In the first place, these protected industries must be very good for the Americans themselves, or the British investor would hardly care to pay a very big price for them; or, on the other hand, it would seem to them that on this side of the water the shrewdest people have given up all hope of such a change in the American tariff as would largely benefit British steel and iron manufacturers. Failing in their assaults on the tariff, the British speculators now boldly enter the citadel and simply purchase what they can not capture. There is reason to believe that within the past six months over \$100,000,000 have been expended by British capitalists in the purchase of well-established American business, including iron and steel works, breweries, distilleries and cotton mills. We agree with a New York cotemporary, who seems to be greatly mystified by this movement, that 'a well-matured scheme exists to secure control of the most profitable American iron and steel enterprises.' No other hypothesis can account for this new-born preference for successful American metallurgical enterprises. We may be sure, however, that the motive in this, as in so many other cases where British investment is concerned, is simply a desire to hold property which will yield a good dividend and has had nothing sinister in it, as a few of the newspapers are good enough to insinuate. At the same time, it does seem curious that our colonies, which certainly offer magnificent fields for the investor, should be completely ignored by the enterprising capitalists who are now so anxious to buy up profitable American industrial concerns. Canada will readily give all the 'protection' that these investors may think necessary, but the Dominion seems to have been overlooked by these grand operators, and at present it would appear as if that country were destined to be developed by American instead of British capital. Whether under all the circumstances it is wise to sink so much British money in American industries may well be doubted. But it is remarkable that such industries as iron and steel works, whose very existence, we are assured, depends upon a tariff that is at best precarious in its nature, should prove so very fascinating to that pronounced free-trader, the British Capitalist."

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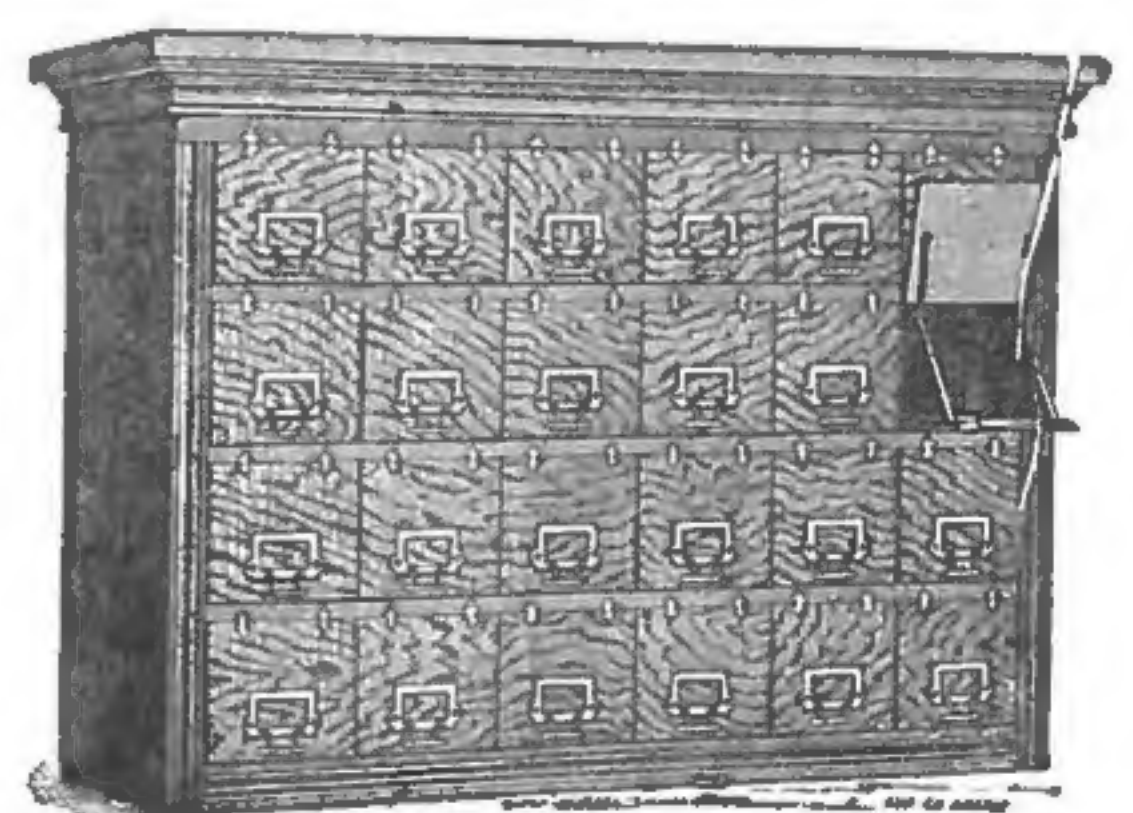
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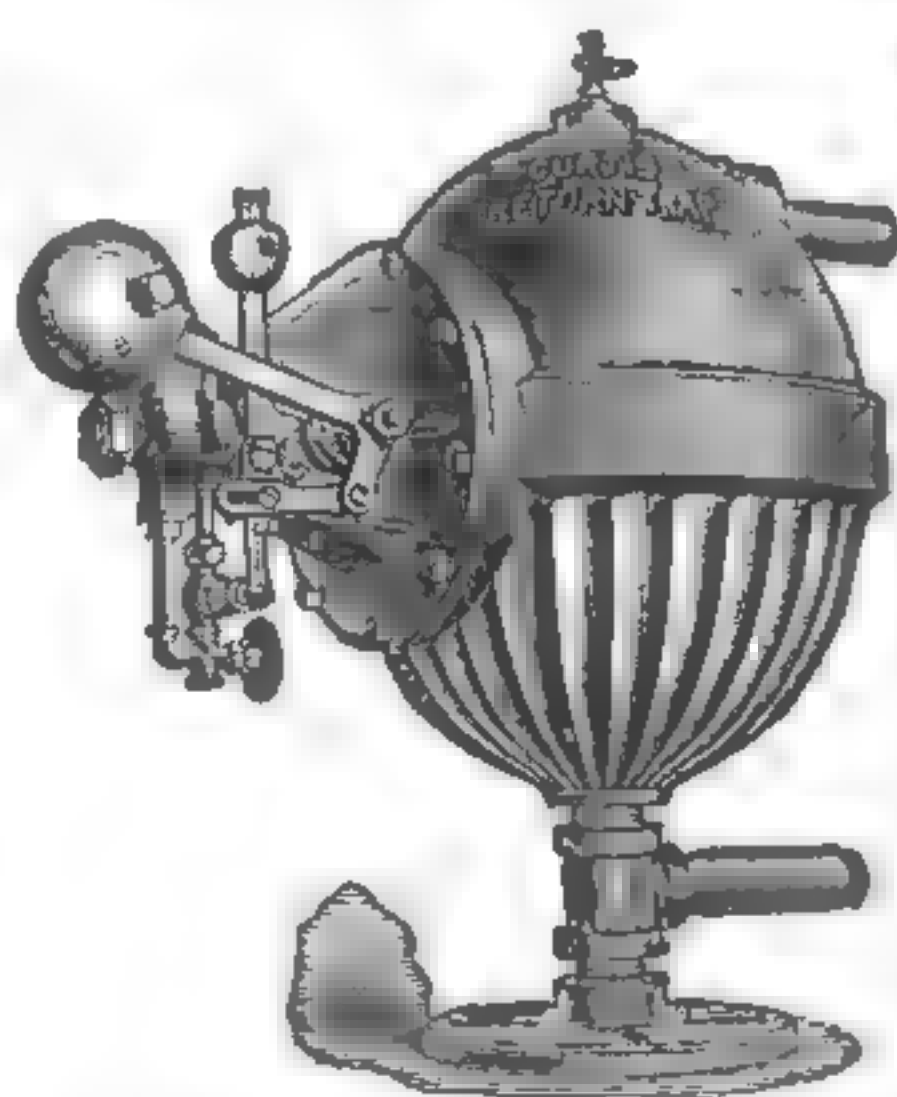
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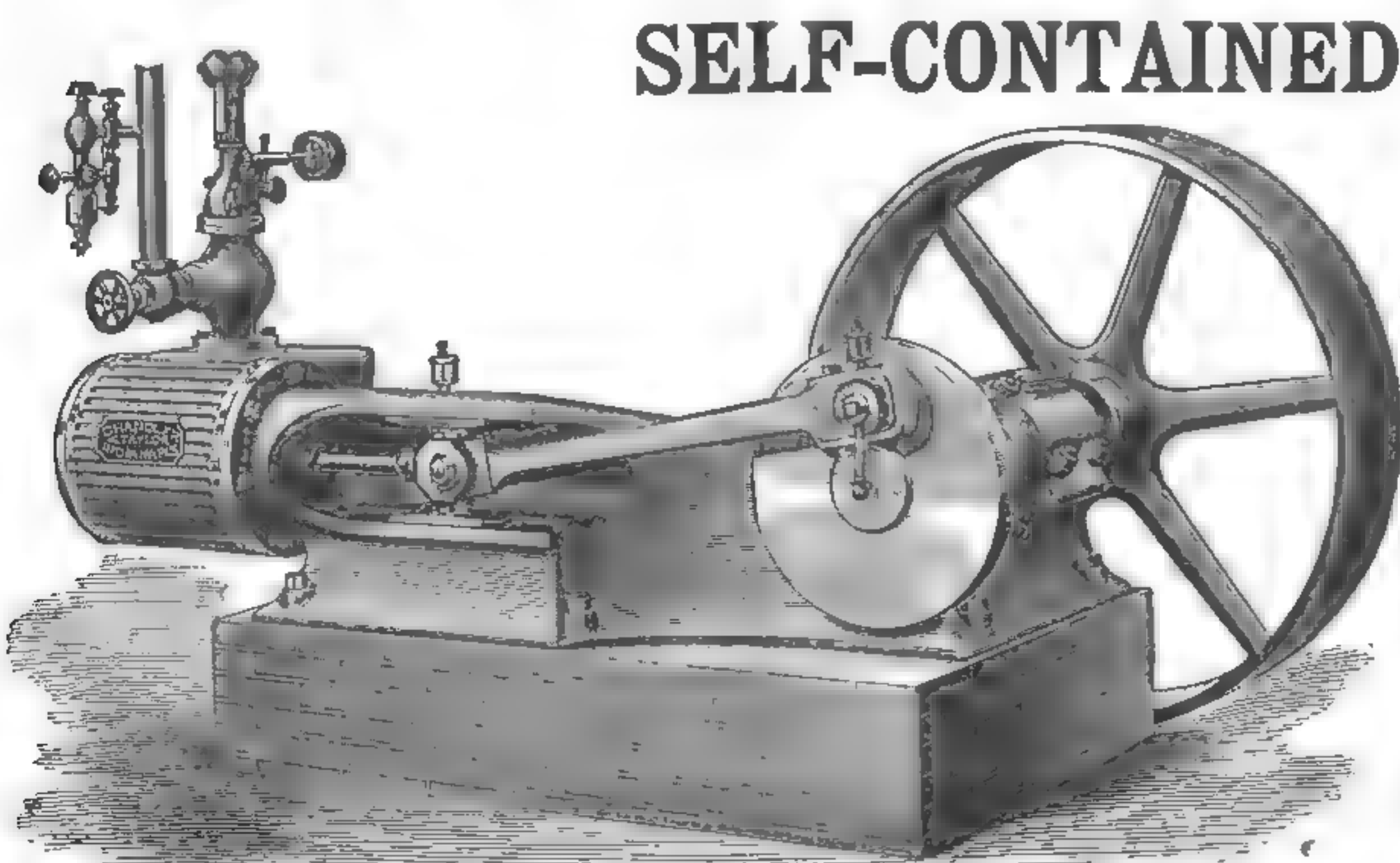
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NOTES & NEWS

T. M. Lewis, miller, Falmouth, Me., failed.
 C. P. Dick, flour-mill, Harrison, O., sold out.
 J. M. Lee's grist-mill, Greensburg, La., burned.
 D. Arvant, Farmerville, La., builds a grist-mill.
 T. Arrents, Big Spring, Tenn., remodels to rolls.
 L. M. Hidden, miller, Vancouver, Wash., sold out.
 Sylvester Bros.' flour-mill, Boscobel, Wis., burned.
 J. J. Faulkerson, miller, Rochester, Minn., sold out.
 J. B. Badger, Elizabeth, W. Va., built a roller mill.
 L. H. Everest & Co., millers, Garoga, N. Y., failed.
 Staunton, Ill., men are building a \$25,000 flour-mill.
 J. T. Cram & Son, Sandy, W. Va., remodel to rolls.
 E. C. Harvey, Peck's Station, S. C., built a grist-mill.
 Harmon & McIntyre, millers, Waldo, Wis., sold out.
 C. A. Wade, Parkersburg, W. Va., builds a flour-mill.
 J. W. Collier, Barnesville, Md., builds a grain-elevator.
 Dr. J. G. Tompkins, Edgefield, S. C., builds a grist-mill.
 Wm. R. Gunderman's grist-mill, Danby, N. Y., burned.
 D. S. Muse's grist-mill, Woodbury, Ga., burned; rebuilds.
 Kirkpatrick & Collins, Hodgenville, Ky., remodel to rolls.
 The Farmers' Alliance, Smithfield, N. C., will build a grist-mill.
 Oskamp & Haines' flouring-mill, Omaha, Neb., burned; loss \$35,000.
 W. E. Brown, Stevenson, Ala., will build a flouring and gristing mill.
 John Campbell, miller, Wilmington, Ill., now C. Sheppard & Campbell.
 H. Swezy's grist-mill, East Patchogue, N. Y., burned; loss \$8,000; insured.
 Anderson & Conier, Lynnwood, Va., have built a 75-barrel roller flouring-mill.
 Prichard & Duke, Tompkinsville, Ky., are building a 40-barrel roller flouring-mill.
 Boyer & Heard, Hagerstown, Md., are building a 50-barrel roller flouring-mill.
 W. E. Gilliland, Baird, Tex., has points on a new company formed to build flour-mills.
 J. L. Crowl's flouring-mill and other property, Reading, Mich., burned; loss \$15,000; insurance \$8,000.
 J. C. Beery, Harrisonburg, Va., will at once build a 125-barrel roller flouring-mill; he wants machinery.
 Moomaw & Littleton, millers, Baker City, Oregon, dissolved; the business is carried on now by Littleton & Duncan.
 Leavenworth, Kan., capitalists have raised money with which they will build a flouring-mill with a capacity of 2,000 barrels a day.
 W. P. Summerson, Swoope, Va., has sold his flouring-mill to W. E. Mays and W. H. Watts, who will remodel it to rolls; they want machinery.
 C. O. Burr and others, Russellville, Ky., organized the Wheel Mill & Elevator Co., capital stock \$50,000, to build a flouring-mill and a grain-elevator.
 Mr. Locke, Charlestown, W. Va., has sold his flouring-mill to the Charlestown Water & Mfg. Co., who have improved and are now operating the plant.
 The National Pulley Covering Co., of Baltimore, Md., announce their removal to more commodious quarters at 23 South Charles street. This change has been made necessary by the steady growth of their business, their present quarters being too small to accommodate them.
 The talk about the probable sale of the Pillsbury milling property in Minneapolis to English parties has broken out afresh. Governor Pillsbury is in England and Charles A. Pillsbury is in New York. The latter neither denies nor affirms the gossip, the governor can not be reached, and nobody in Minneapolis has positive information on the subject.
 Ontario millers are complaining that the new winter wheat is soft and unfit for grinding except when mixed with a large percentage of old. A

number of them have intimated their intention to import Detroit wheat and grind it in bond for export, as they say it is impossible to pay the high price demanded for Canadian red winter wheat and sell it for home consumption at a profit.

The Buffalo, N. Y., Merchants' Exchange grain inspection committee has abolished the grade of extra hard Duluth wheat. Hereafter all having over 75 per cent. of Scotch life will be graded No. 1 hard. It was thought unwise to grade wheat higher here than was done at Duluth, because it might lead to mixing poor wheat with the fine new crop to bring the latter down to 75 per cent. New wheat runs 90 to 95 per cent. hard.

Michigan crop reports state that returns have been received from 621 correspondents, representing 510 townships; 426 of these reports are from 328 townships in the southern four tiers of counties, and 97 reports are from 91 townships in the central countries. Correspondents in the southern four tiers of counties have received from threshers statements of wheat threshed up to about Aug. 25, as follows: Jobs 4,553; acres 69,656; bushels 1,127,931; average per acre 16.19 bushels. The number of jobs reported threshed in the central counties is 920; acres 8,283; bushels 134,070; average per acre, 16.19 bushels. The number of jobs reported from the northern counties is 144; acres 891; bushels 11,443; average per acre, 12.84 bushels.

Messrs. Fusz & Baecker, St. Louis, Mo., write to Chicago *Daily Business*: "The evil of the flour trade is the excessive milling capacity, which causes two barrels of flour to be offered where only one is wanted, and prices are thereby whittled down to no profits, even to a loss. This feature is noticed particularly in the fall, after all the harvests, from the south to the farthest north, are gathered in and all the mills are at work. The statistical position is strong enough; the best authorities in the United States and in Europe show that the world's wheat crop of this year is even less than last year's; but the deficiencies have been shifted, America and western Europe having good crops, central and eastern Europe and India having poor ones."

Concerning the Dakota harvest the Minneapolis *Market Record* has the following: During the past week threshing has been in progress all through North Dakota, although the work has been hindered to some extent by rain and wind. Although \$2.25 to \$2.50 per day are paid, it has been almost an impossibility to get men enough to do the work, as a larger number of new machines have been added to those in use heretofore, and some machines have come from the wheatless district out west to engage in the valley around Grand Forks. The result is that grain is being threshed out with a rapidity never before witnessed there. Very few farmers have stacked their wheat this year, hauling directly from the stacks to the machine. The recent heavy rain will delay threshing for several days, except where wheat has been stacked, and the quality of the wheat will be affected still further. The wheat now coming into the market is hardly up to the quality expected a few weeks ago, that is, less of it will grade No. 1 hard than was anticipated. The recent rains have bleached some of the wheat, and some is shrunken to a slight extent. Some pieces of wheat are threshing out enormous yields, 30 bushels per acre being a rather frequent result, and numerous reports of 40 are received and well vouched for. Some pieces which were not cut previous to the fierce wind storm of the first were made so nearly worthless by the wind that they have not been cut at all. These cases are not numerous, but the amount is large enough to reduce the average, and a conservative estimate of the yield in the county of Grand Forks places it at 12 to 15 bushels.

Among the popular scientific articles to be published in *The Century* during the coming year will be reports of the latest studies and discoveries made at the Lick Observatory in California, furnished by Professor Holden. Professor Putnam of Harvard has written a series of papers for the same magazine on Prehistoric America, in which he will give the result of his own explorations of caves, burial-places and village sites. A detailed account of the strange earth-work known as the Serpent Mound of Adams County, Ohio, will be printed, and the illustrations of some of the papers will include a number of terra-cotta figures of men and women in a style of modeling heretofore unknown in American prehistoric art.



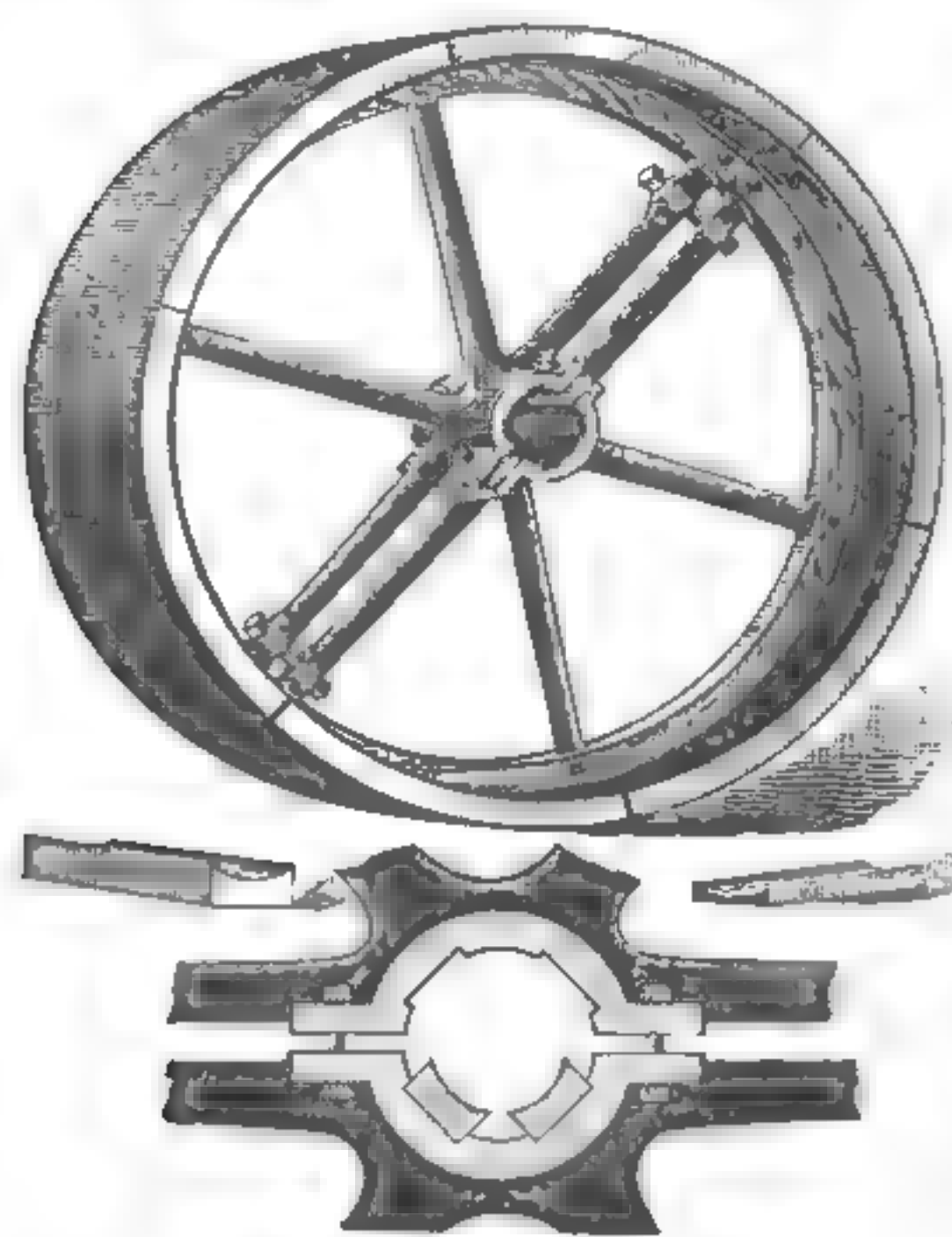
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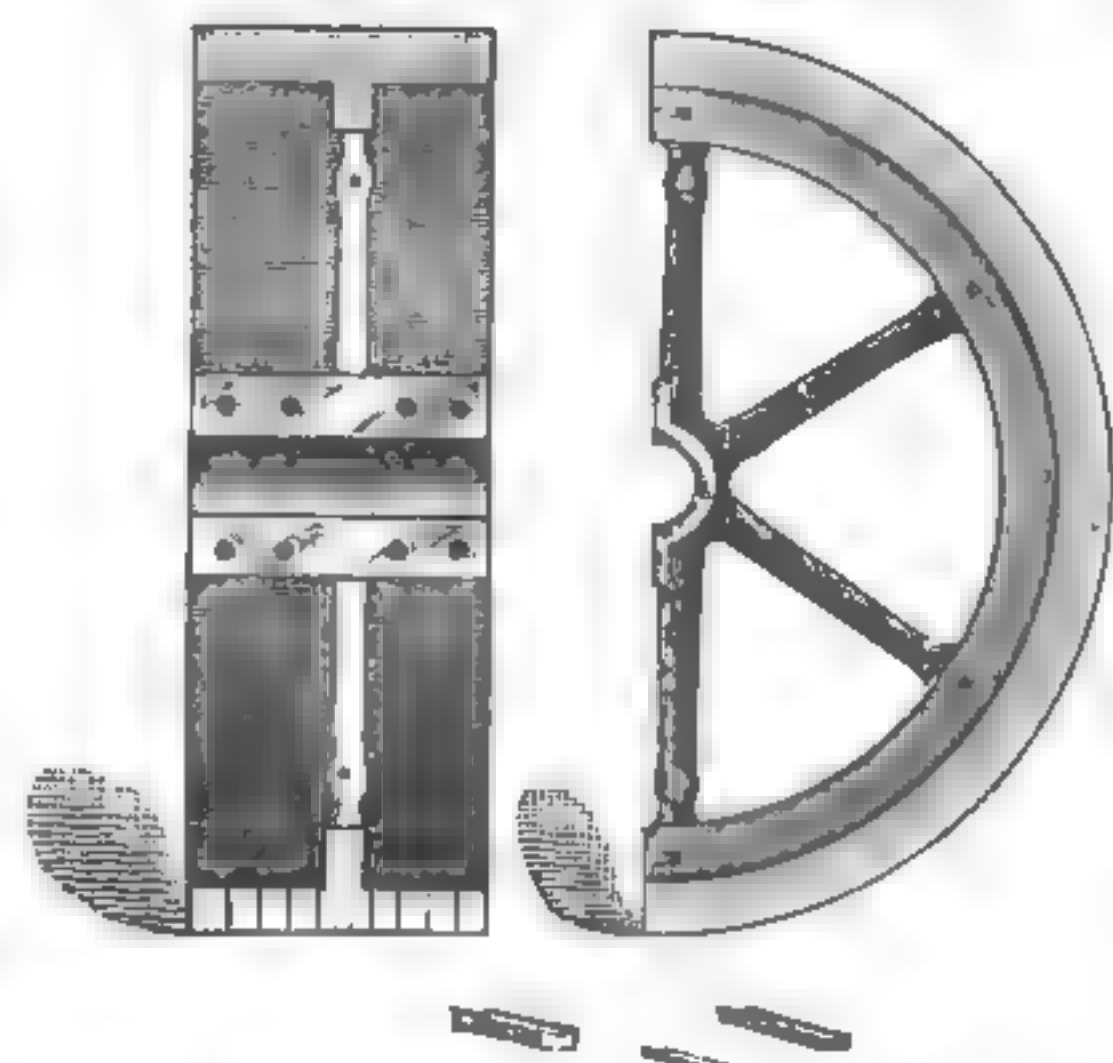
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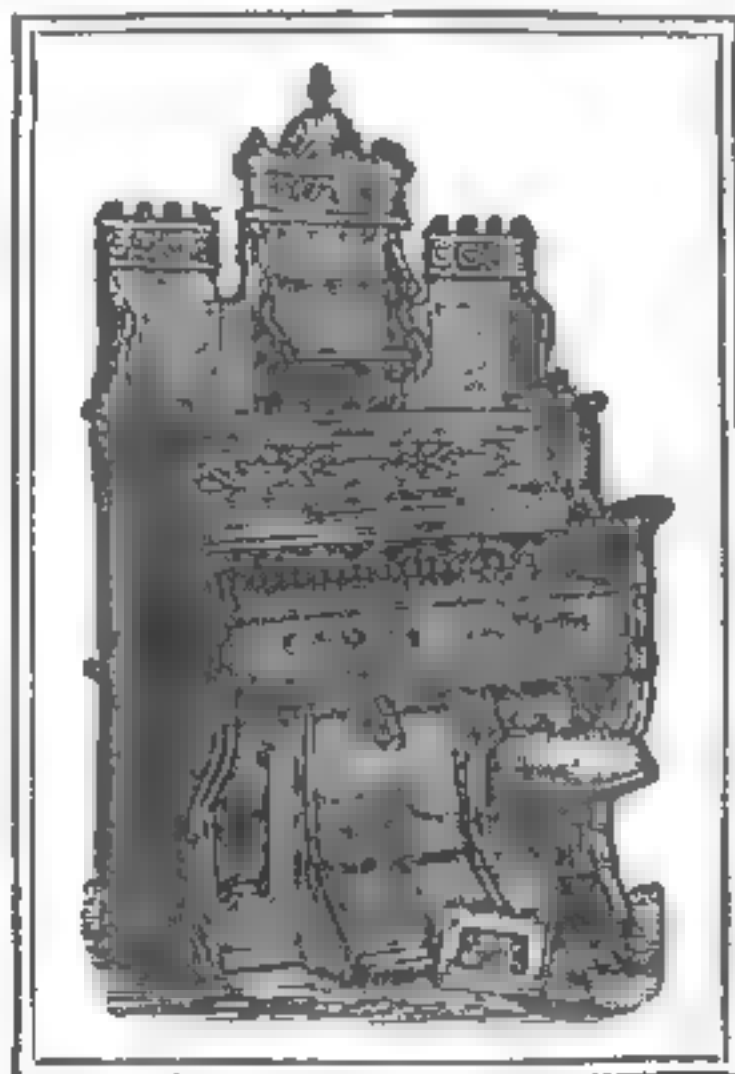


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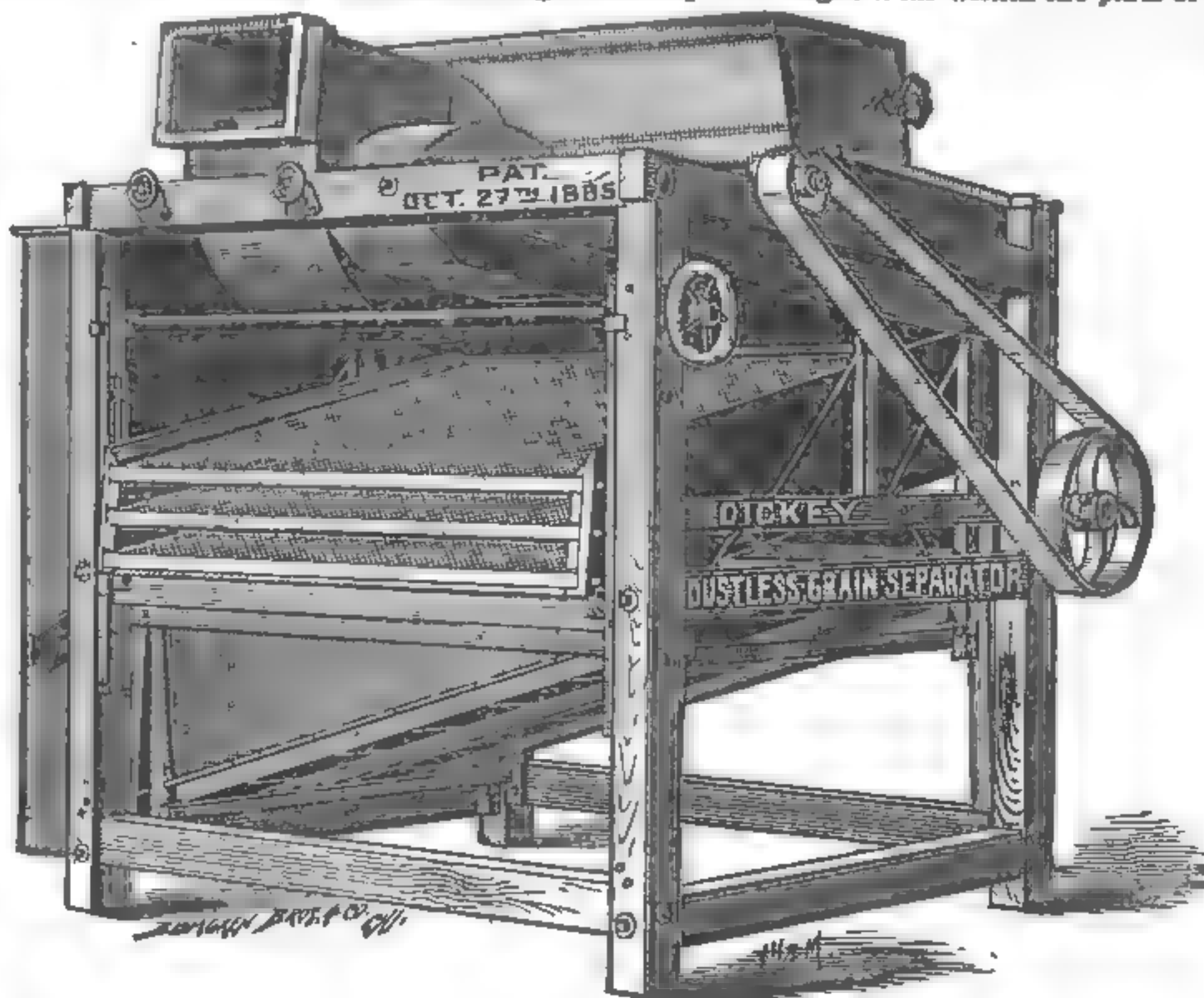
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EUROPEAN ECHOES.

SAYS the Liverpool "Corn Trade News" of September 4: "A dealer in the Midlands, just returned from the wheat-growing districts in the Eastern counties, writes that farmers complain that the yield is less than they expected and think it pretty certain the crop will not reach an average yield."

THE Liverpool "Corn Trade News" says: "The reliability of the Russian official report having been called in question on the head of thoroughness, we made inquiries as to the number of correspondents to the Minister of Agriculture, and our reply is 'over 1,200.' This number compares not unfavorably with similar returns compiled in this country, for instance: The Liverpool 'Corn Trade News' 690; 'The Times' 400; the 'Agricultural Gazette' 228; 'Beerbohm' 65."

EMPLOYERS in Germany are usually particular about testimonials, and sad must have been the lot of that illiterate miller who wandered about Germany for many years with the following testimonial: "This is to certify that ——— worked in this mill from the 2nd August to the 15th September, 1876, during which time he was very drunk." The victim of this heartless practical joke went from one mill to another in complete ignorance of the nature of his "recommendation."

WRITING from Canton the British Consul says: "The demand for American flour has also increased from 73,333 piculs to 87,241 piculs (16 piculs equal 1 ton avoirdupois). There is at all times a demand, and yearly an increasing one, for foreign-made flour, which, when the Americans have time to devote to the trade with China, may become of great importance. Part of this, it is said, is really Canadian flour." As Canada is importing flour from the United States, it might be interesting to point out what part of it is sent from Canada to China.

VARIOUS rumors are afloat concerning a new machine which is at work in a Brussels mill, and which is said thoroughly to reduce the wheat to middlings, with a minimum amount of break-flour, in two breaks, the bran being left very large and only requiring to be put through bran-rolls to be finished. There is a certain amount of secrecy observed about this machine, which has, however, been examined by a number of English millers lately, who agree that the work done is marvelously good, but that the capacity is too small. The machine consists of a roll of large diameter specially fluted, working against a fixed segment also specially grooved.

SAYS the London "Miller" of September 2: Quite a rain of statistics has poured upon the markets during the past week. The world's harvest sum has been worked out and the quotient given. With this one may pass on to the effects of the publication of all the estimates, and the result seems that there are no changes; all is as it was. The markets are slow, the prices low and the future is undecided. France repeats its calculation that it has enough for its wants. Certainly it has retired from the business of buying abroad and is content to look for supplies at home. Present rates of wheat are 3d. dearer over the next three months' delivery. Thus a stability of rates is forecast. Germany is rather unsettled in its markets. Its harvest is deficient, and those of adjacent countries are also inferior; but the total of its import wants is but moderate and may easily be obtained. The Peninsular countries want more and less than usual, Italy being deficient, while Spain has less requirements than in 1888. Russia is, we are officially informed, fairly well off, but we are also told commercially that some important Russian districts only have half a crop of wheat. True, the area marked in the maps as "good" is large, but it will be found much of this good breadth is in the remote northeast, whence scarcely any exports are forwarded. Meanwhile, merchants follow the English market, but do not force sales. India is

shipping with freedom at present rates, 30s. 3d. red, to 31s. 9d. No. 2 Calcutta; 33s. 6d. white Delhi, to 35s. 3d. No. 1 Bombay.

SAYS the London "Millers' Gazette": We have shown that the exports of American flour last season, twelve months ended July 31, were largely below those of the previous season. We now give a table of the destinations of these exports, which is important, showing, as it does, that the United Kingdom took only 56 per cent. of the total shipments, against 67 per cent. in the previous season:

	1888-89. Brls.	1887-88. Brls.
United Kingdom.....	5,281,738	8,070,490
Germany.....	13,009	45,912
Other European Countries.....	179,410	420,407
Canada.....	931,735	572,161
Mexico.....	32,114	24,282
Central America and Honduras..	163,604	164,889
West Indies	1,171,228	1,181,038
Brazil.....	678,972	581,670
Columbia.....	61,603	73,632
Other South American ports.....	333,592	319,778
Asia.....	502,087	463,632
Africa.....	10,275	13,078
Sundries.....	15,436	29,605
Total	9,374,803	11,963,574

To other countries than Europe, therefore, the United States sent 3,900,000 barrels of flour, which, together with 415,000 quarters wheat, made a total of wheat and flour of 2,525,000 quarters.

COMMENTING on the convention of British and Irish millers in Paris, France, the London "Millers' Gazette" says: "The Indian wheat discussion is taking up an unduly large portion of the attention of the association. Cleaner Indian wheat is evidently desirable, but it is an open question whether it is wise to insist upon a 2 per cent. margin of impurities; very few foreign wheats coming to this country have so small a percentage of impurities as 2 per cent. and experience seems to show that Indian wheat is naturally an impure wheat. * * * * Meanwhile the importance of Indian wheat in the United Kingdom as far as the quantity is concerned, is generally overrated. The exports from India during the past three seasons, with the quantity sent to the United Kingdom, have in fact been as follows:

	Total Exports. Quarters.	Exports to U. K. Quarters.
1888-89.....	4,111,000	2,109,000
1887-88.....	3,460,000	1,410,000
1886-87.....	5,194,000	2,254,000

Indian wheat, therefore, forms only about a twelfth of the entire consumption of the United Kingdom, instead of one-fourth as we have heard it stated. * * * * We see it stated in the report of the association that the present number of mills in the United Kingdom is about 8,500, against 10,450 in 1879, a decrease of nearly 2,000 in the past decade. It is difficult to imagine that there were so many mills in 1879 as 10,450, and it is equally difficult to believe that there are 8,500 at the present time running. As we have frequently pointed out, this list of millers contains the names of some hundreds of men who call themselves millers in the county directories because they sell flour, not because they make it; and it also includes a large number of windmills, grist-mills and feed-mills, which, for the purposes of this Association, would not count. We believe that at the present time there are not more than 5,000 flour-mills at work in the United Kingdom. * * * * What seemed particularly to strike the British visitors at Paris was the excellent quality of the bread and the great amount which is eaten. It is a fact that France is the largest consumer of wheat bread in the world, her consumption of wheat per head being about 8 bushels against 5½ to 5¾ bushels per head in the United Kingdom. Thus, although the population of France is only about three millions more than that of the United Kingdom, the consumption of wheat in the former country is about 42,000,000 quarters per annum, and in the latter country only about 26,000,000 quarters.

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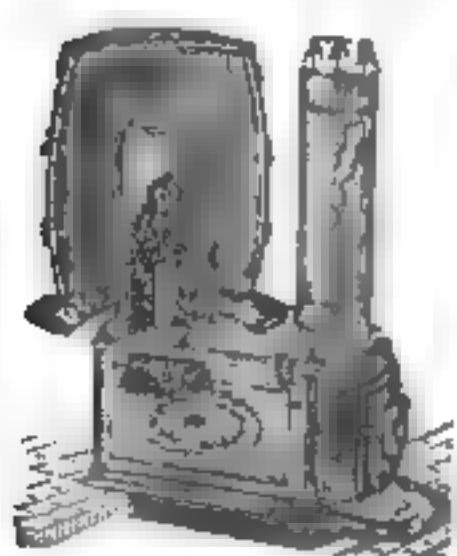
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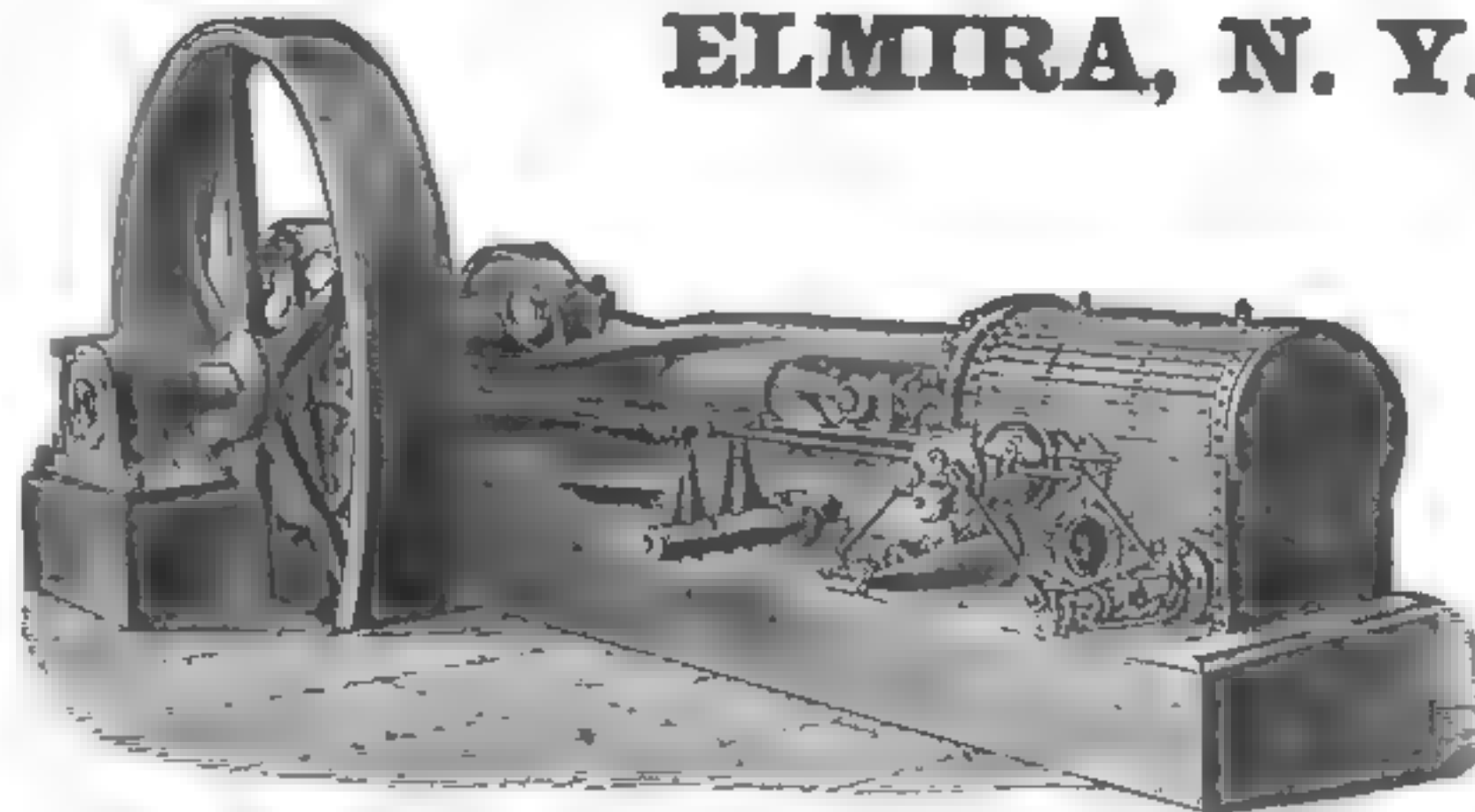
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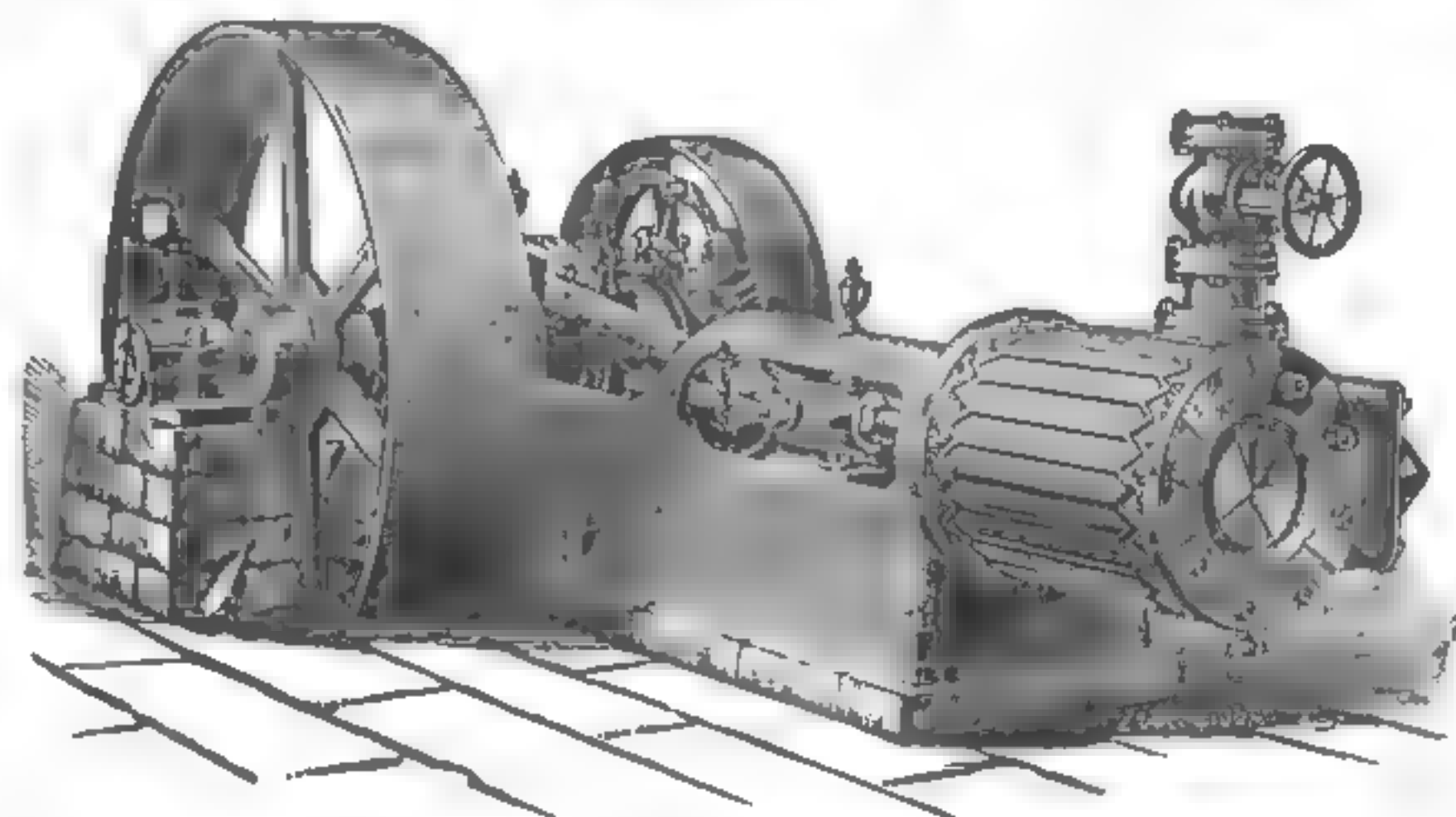
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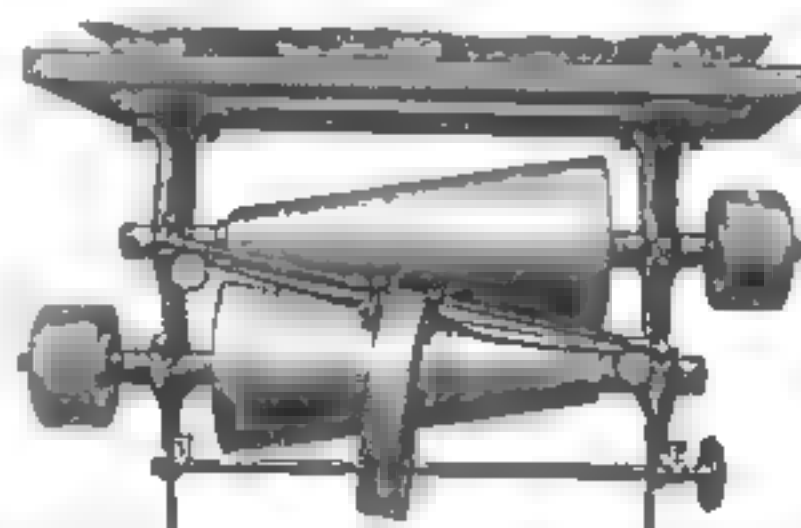
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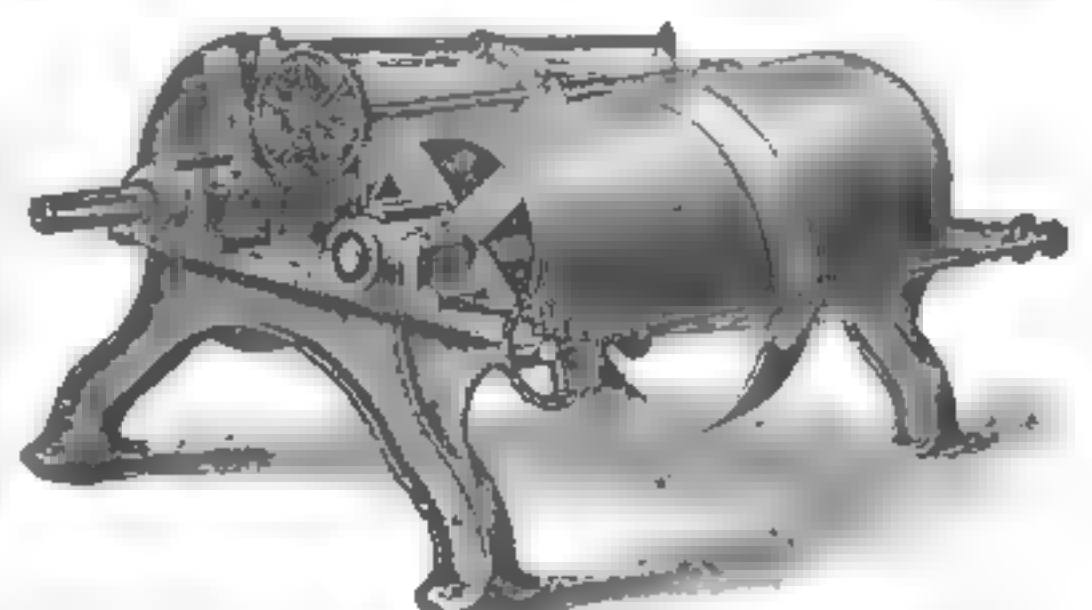
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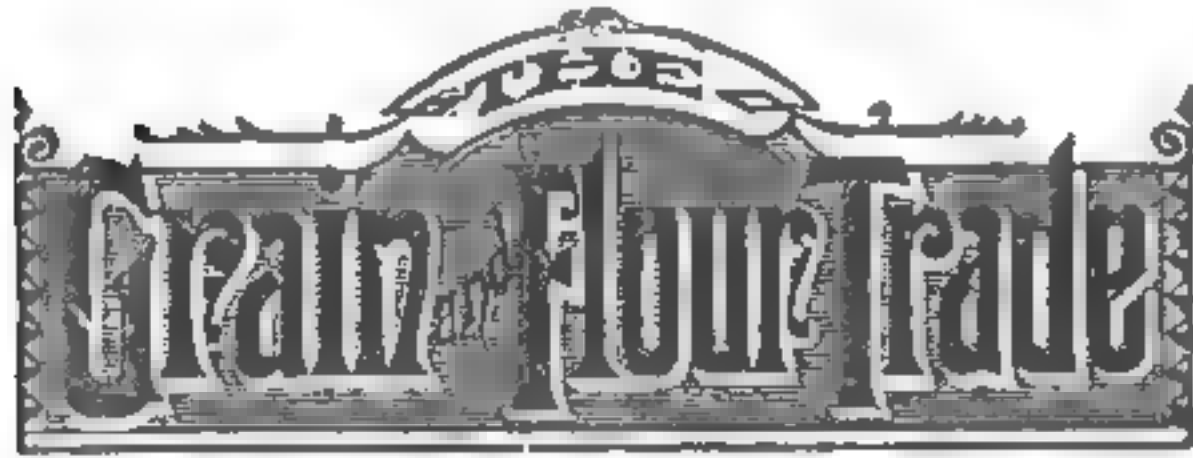
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OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., Sept. 21, 1889.

Friday of last week brought lower and more active wheat, corn and oats markets. September wheat closed at 84c. Options 2,800,000 bushels. September corn closed at 41½c. and oats at 26c. Wheat flour was unchanged and very dull. The minor lines were featureless.

Saturday brought little or no change in prices and conditions. Sensational dispatches, announcing a half wheat crop in France, were received, but they had no effect. September wheat closed at 83½c. Options 496,000 bushels. September corn closed at 41½c. and oats at 26c. Both were in small trading. Wheat flour and all the other lines were dull and featureless.

Monday brought duller and lower markets on good receipts, free movement and realizing. September wheat closed at 83½c. Options 750,000 bushels. September corn closed at 41½c. and oats at 26c. Exporters did little business during the day. Wheat flour was generally dull and easier, with concessions to sell. Exporters took only small lots. The minor lines were featureless. The visible supply in the United States and Canada was:

	1889.	1888.	1887.
	Sep. 14.	Sept. 15.	Sept. 17.
Wheat	15,697,456	31,378,221	31,071,309
Corn	12,891,980	8,602,854	7,570,429
Oats	5,915,944	5,211,494	4,758,326
Rye	1,074,858	508,398	313,941
Barley	423,333	136,696	680,359

Tuesday brought stronger markets, on reports of cold weather in the corn sections and lighter wheat receipts and offerings. The amount of wheat on passage decreased 1,168,000 bushels, which aided in strengthening the market. September wheat closed at 83½c. Options 1,930,000 bushels. Exporters did nothing and millers took only small quantities. September corn closed at 41½c. Trading was large. September oats closed at 26½c., with light trading. Wheat flour was dull and easier on trade brands, with buyers holding on. Exporters took some springs to arrive, chiefly new. Trade was moderate. The other lines were not quotably changed.

Wednesday brought stronger markets, with a general advance, on lighter movements and poor grading in the West, and steadier European cables on wheat and flour. September wheat closed at 84½c., against 98c. on the corresponding day last year. Options 1,600,000 bushels. September corn closed at 41½c. Sales 760,000 bushels. September oats closed at 26½c., with good trading. Rye grain was nominally quoted as follows: No. 1 State 55@56c; choice Western 51@53c; common or No. 2 do 47c; car lots, track, Pennsylvania and Jersey 48@52c. Barley was unsalable, with State as well as Canada offered more freely without drawing any bids, as maltsters still held off. No quotations were given. Malt was nominally unchanged, with little demand or business reported. Mill-feed was steady and in fair demand at the following quotations: 40, 60 and 80-lb. 55@60c.; 100-lb. 77½@82½c.; rye 70c.

Wheat flour was unchanged in price, but steadier in tone with wheat. Buyers showed more disposition to buy, and holders showed less disposition to sell, excepting at advanced figures. The export trade was less general than on the preceding day. The quotations were as follows:

	SPRING FLOUR.	
	Sacks.	Barrels.
No grade	\$1.50@1.65	\$....@....
Fine	1.90@2.00	2.05@2.05
Superfine	2.15@2.25	2.40@2.60
Extra No. 2	2.40@2.55	2.65@2.80

Extra No. 1	3.10@3.25	3.35@3.80
Clear	3.20@3.40	3.50@3.55
Straight	3.85@4.15	4.25@4.75
Patent	4.80@5.00	5.20@5.30

WINTER FLOUR.

	Sacks.	Barrels.
No grade	\$1.65@1.80	\$....@....
Fine	2.15@2.30	2.25@2.40
Superfine	2.50@2.55	2.50@2.60
Extra No. 2	2.55@2.70	2.65@2.80
Extra No. 1	2.95@3.90	3.10@3.85
Clear	3.50@3.80	3.85@3.90
Straight	4.10@4.15	4.30@....
Patent	4.35@4.40	3.60@4.65

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W. I grades	4.20@....
Low grades	2.50@....
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Rye flour was unchanged and dull at \$3.75 @ 3.00 for superfine State, not sympathizing with the generally advanced markets. Buckwheat flour was nominally \$2.70 per sack for new to arrive while old was quoted at \$2@3.20. Corn products were active for both bag and barrel stock at the following quotations: 80@85c for coarse meal; 92@95c for fine yellow; 98c@1 for fine wheat; brewers' meal \$1.05@1.10; Brandywine and Sagamore \$2.75; Western and Southern \$2.65@2.75.

Thursday brought quiet markets, but with no loss of steadiness. September wheat closed at 84½c. Options 1,376,000 bushels. Exports footed 92,754 bushels. Corn receipts New York were 229,900, and exports 65,000 bushels. Options 640,000 bushels and spot sales 217,000 bushels. September corn closed at 41½c. September oats closed at 26½c. Receipts in New York 141,000 bushels, spot sales 114,000 bushels, and options 285,000 bushels.

Wheat flour was strong. New York receipts were 14,115 packages, and sales 33,600 barrels. The prices for some of the brands were as follows: Low extras \$2.50@2.90; city mills \$4.15@4.30; city mills patents \$4.60@5.40; winter wheat low grades \$2.50@2.90; fair to fancy \$3.05@3.65; patents \$4.10@5.10; Minnesota clear \$3.15@4.10; do straights \$3.75@4.85; do patents \$4.15@5.55; rye mixtures \$3.15@3.75; superfine \$2.10@2.85. The other lines were not materially changed.

BUFFALO MARKETS.

WHEAT—To-day the wheat market continued firm, and closed slightly better. Here there was only a light demand for hard spring, millers evidently believing that the bottom had not been reached. There is, however, a strong impression in all other circles that wheat is now cheap, and that prices can not go much lower. Sales reported were 4,500 bu new No. 1 hard in lots at 87½c, 3,100 bu new No. 1 Northern at 85c, and 19,000 bu new No. 1 hard at 86½c c. i. f. At the close 88c was asked for new No. 1 hard, but 87½c probably would have brought some out; No. 1 Northern, 85@85½c. A little 1887 No. 1 hard was offered at 95c, and 1888 do at 89½c. At Chicago September opened at 77½c and closed at 7½c, ½c higher than the previous day; December opened at 79½c, dropped to 79½c, sold up to 80½c, and closed at 79½c, ¼c better. At Duluth cash closed at 80½c, ¼c advance. At New York September closed at 84½c ½c higher; December at 87½c, ¼c gain. Winter wheat was dull and offerings scarce. Prices were firm. Sales included 2 cars new No. 2 red at 83c, two cars, extra, No. 3 red at 77c, 1 car do at 79c, 1 car do (choice) at 80c, all on track; 1 car California white in store sold at 89½c. At the close old No. 2 red was held at 85c, and no new offered; new extra No. 3 red, 78@80c, No. 3 at 78c in store, extra No. 2 white at 82@83c, California white at 89½c in store. No. 1 white was out of market. CORN—Corn was quiet and easy, closing unsettled ¼@½c lower. Sales reported were 16,000 bu No. 2 in lots at 37½@37¾c, 1 boatload and 4 cars No. 3 at 37c in store; on track, 1 car No. 2 yellow at 38½c, 4 car. No. 3 yellow at 38c. No. 2 yellow closed at 37½@38c, No. 2 at 37½@37¾c, No. 3 at 37@37½c in store; No. 3 yellow on track, 37½c. OATS—Oats were dull and easy. Sales comprised 500 bu old No. 2 white at 28½c, 1 car new do at 25½, 7 cars do at 25½c, 2 cars choice do at 25½c, 1 car extra do at 26c, 1 car No. 3 white at 24½c, 1 car No. 2 at 23½c, 1 car No. 3 at 22½c, all on track. No. 2 white closed at 25½c, No. 3 white at 24@24½c, No. 2 at 23½@24c. BARLEY—Barley was in improved inquiry, and several deals were reported as working to a head. Consid-

erable new Western already has been bought by local maltsters at from 45c to 58c for No. 3, dark, but plump and of good weight. If the cool weather continues, malt-houses soon will begin operations. RYE—Rye was nominal. FLOUR—Flour was quiet and steady, and mill feed unaltered. CANAL FREIGHTS—Canal freights were active and firm.

Following is a view of wheat culture in Iowa presented by a Des Moines newspaper: The chief cause of discouragement of spring-wheat culture in Iowa is climatic changes. Wheat needs a cool, dry atmosphere, and especially during weeks while maturing the crop showery weather, followed by burning, scalding sunshine is destructive to wheat in that stage of its growth when the kernel is forming. For several years this has been characteristic of late June and early July. The chinch-bug ravages have been of considerable consequence in the forces determining against the growth of spring wheat. They propagate their species so rapidly that it has become rare for spring wheat to mature without being damaged more or less by these pests; and when climatic conditions favor them, they pass from the wheat field to other crops, often destroying the corn and oats. When they do not have a wheat field in which to breed and multiply, they rarely ever become numerous enough to do any injury to the crops. Without doubt there has also been a change in the conditions of the soil which, aside from constituent elements, renders it less adapted to the growth of spring wheat. Present conditions of soil, climate and development of insect life are against successful spring-wheat culture and would seem to warrant the farmer in discarding wheat growing, to devote his labor and soil to crops more certain. The low prices of wheat has also operated against the wheat industry, but while wheat has been low the price of flour has been manipulated until the past winter the farmer was required to exchange 1,100 to 1,200 pounds of corn for 100 pounds of flour. The writer has for years believed that it is true economy for farmers to raise sufficient wheat to supply the household with bread. And this belief has ripened into stronger and stronger conviction as he has noticed the wide difference between selling price of 100 pounds of wheat as it goes away from the farm and the selling price of 100 pounds of flour. The value of wheat for home consumption is not to be measured by its worth sold as wheat, but the value of the breadstuff furnished the family at current prices for flour.



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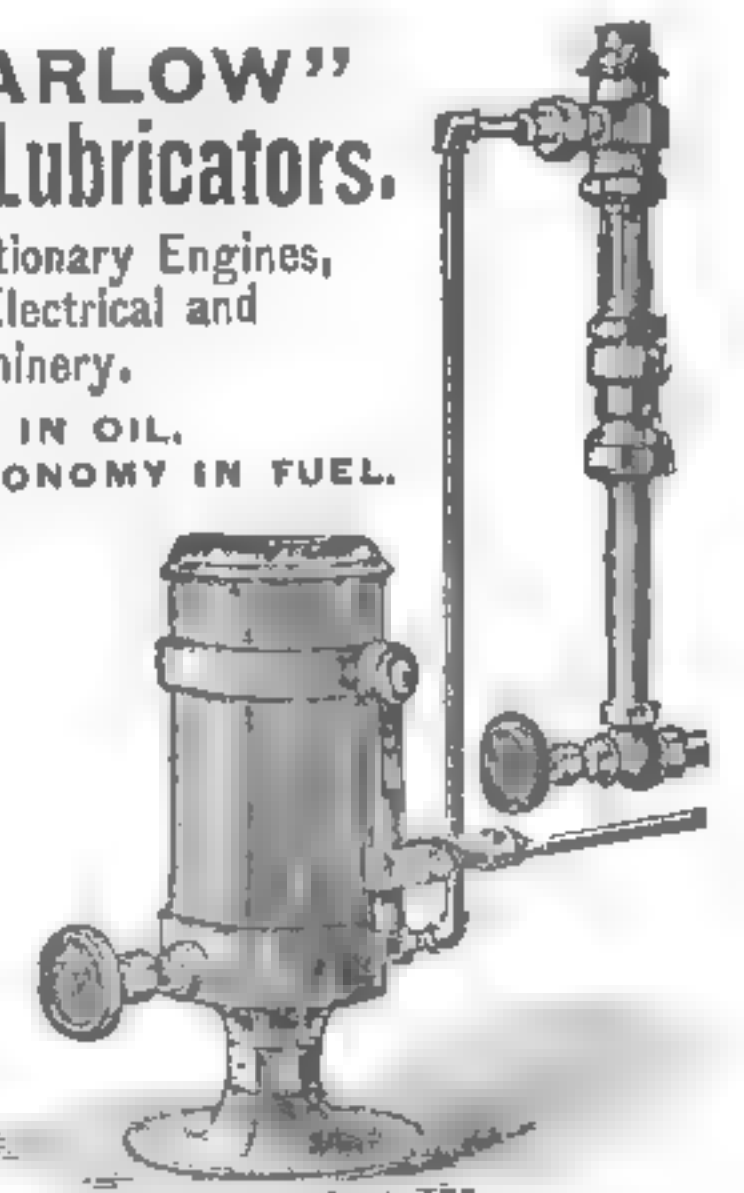
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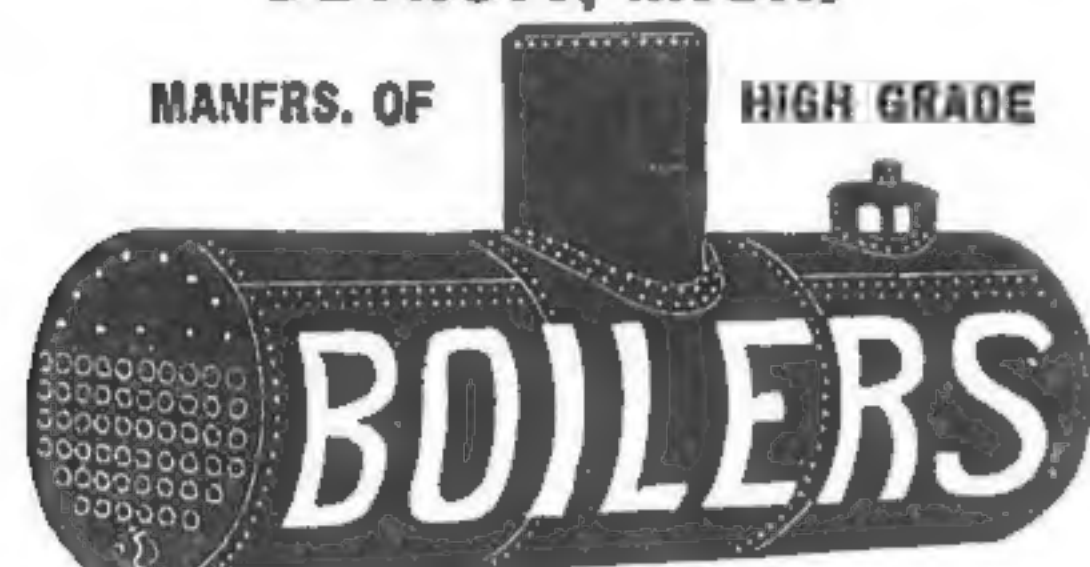
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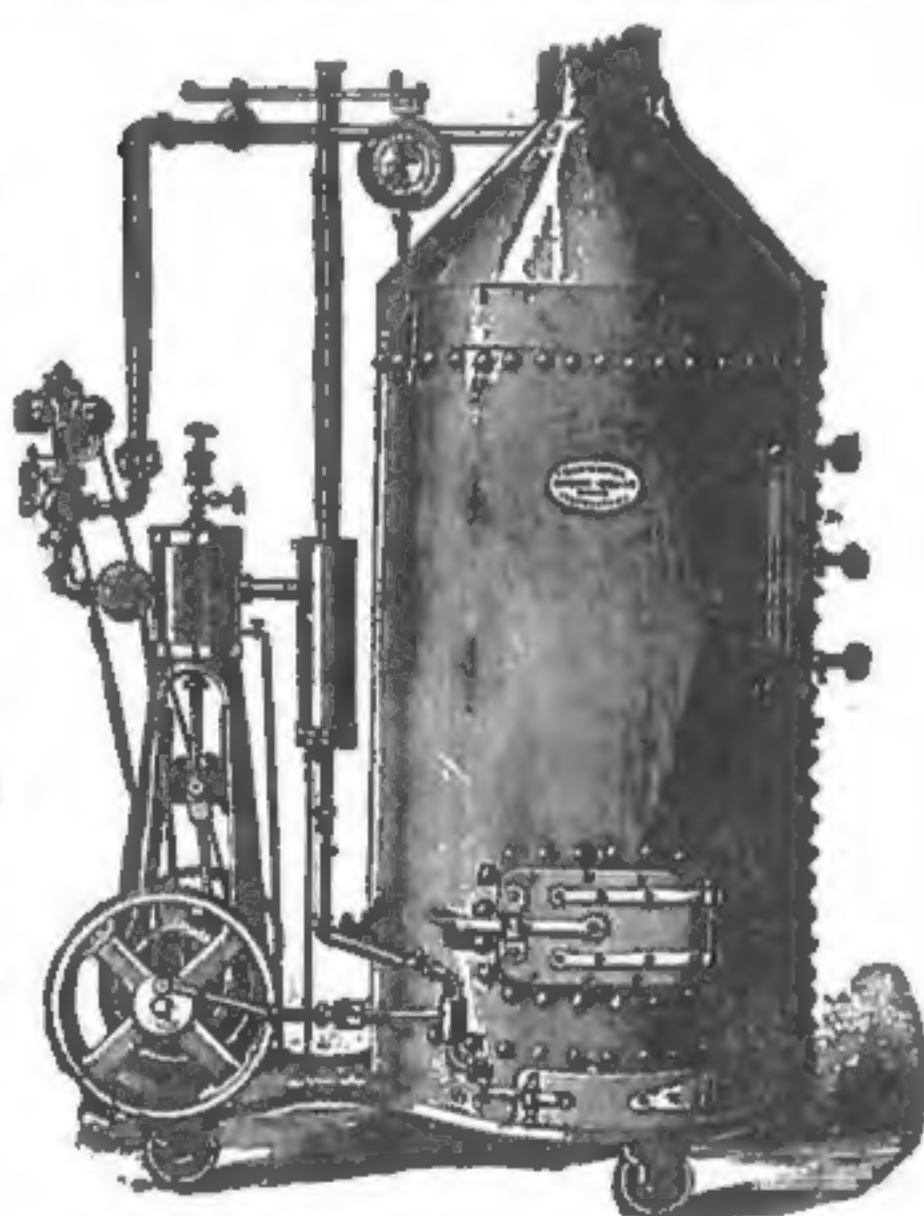
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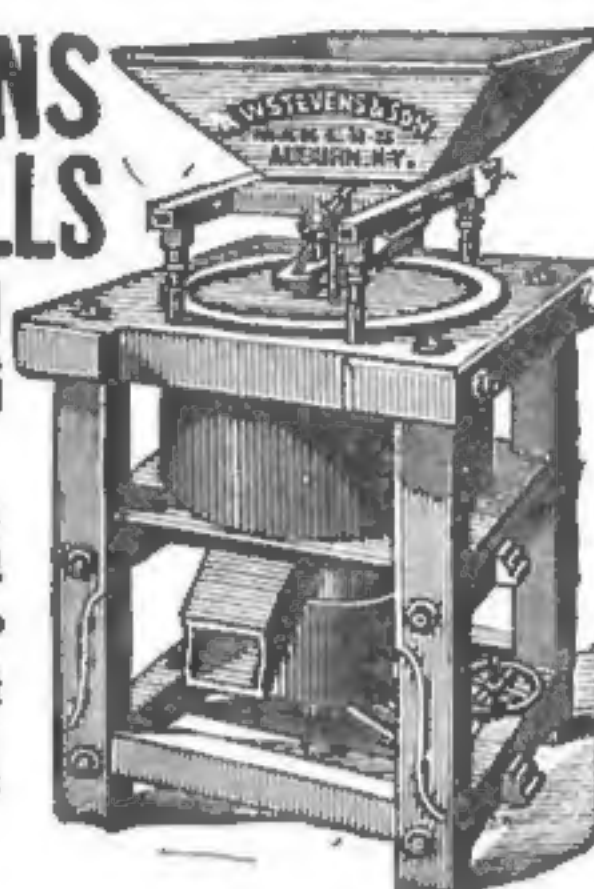
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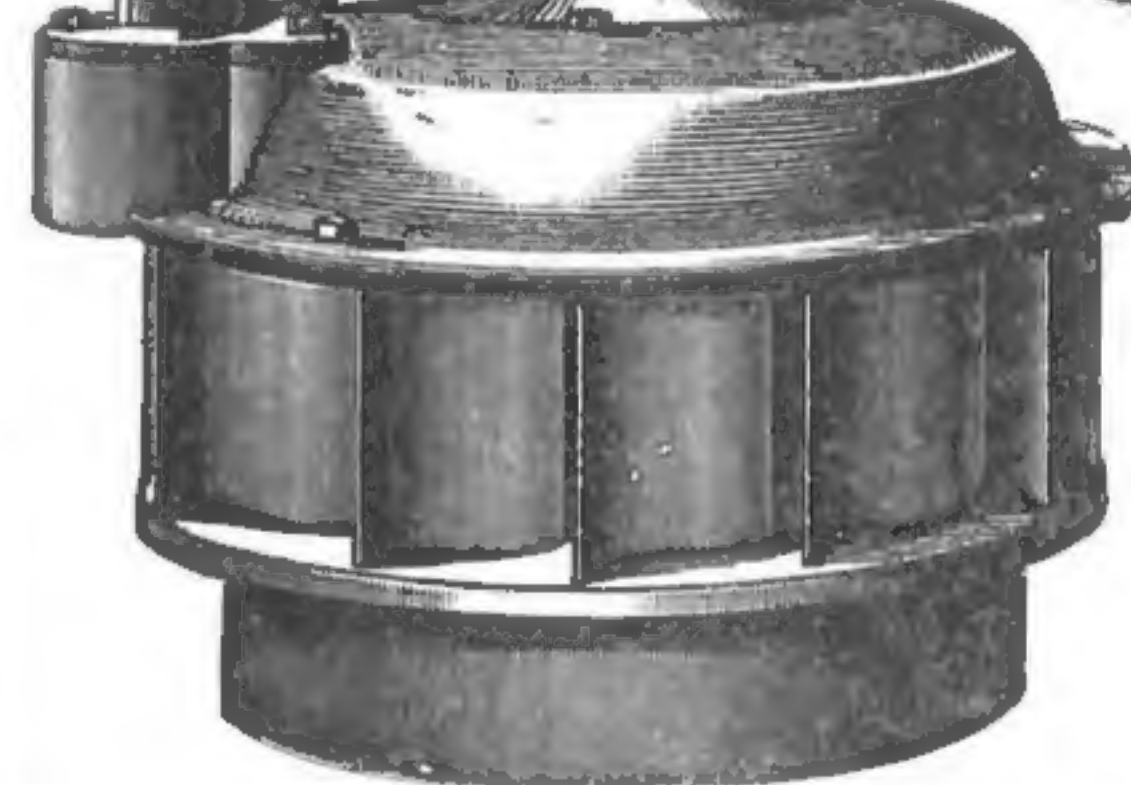
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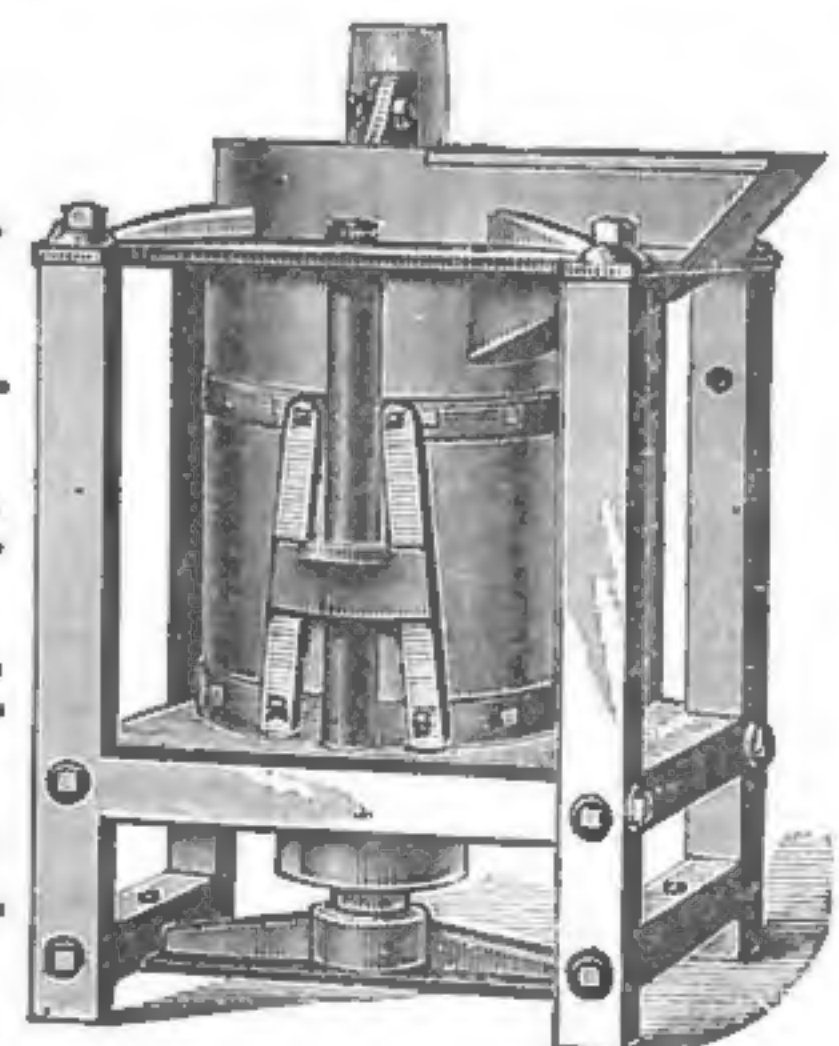
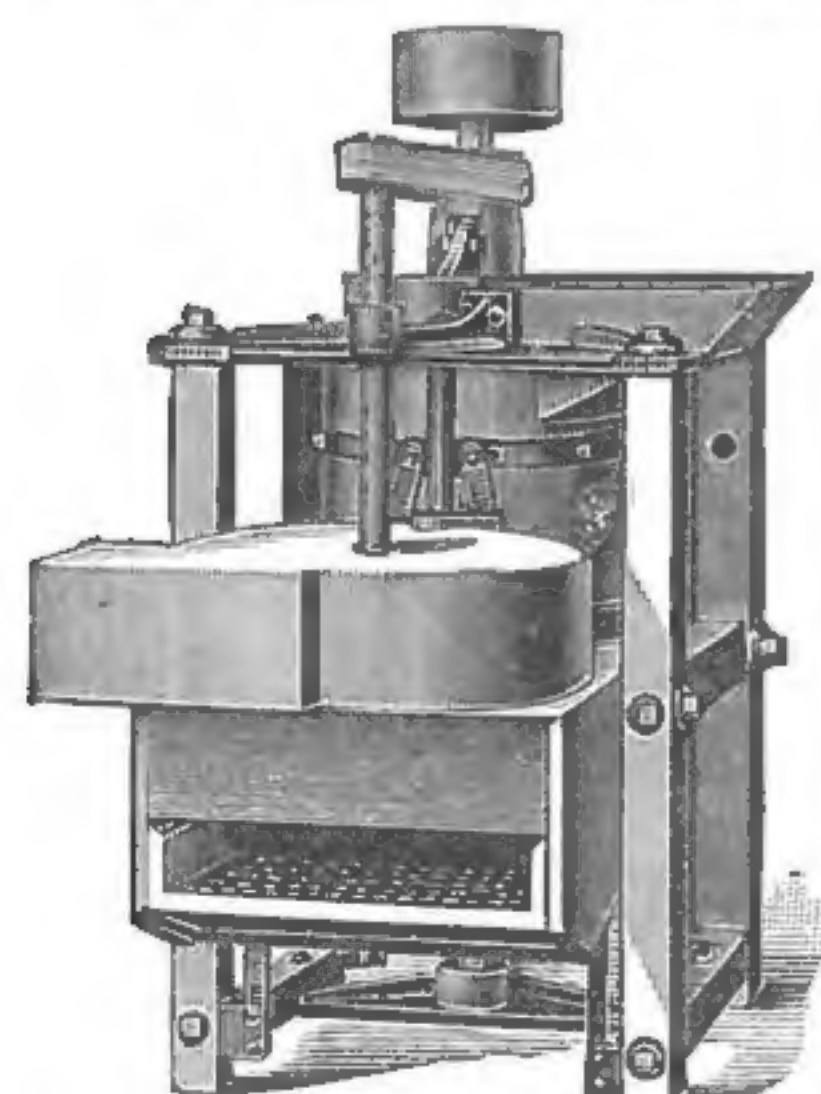
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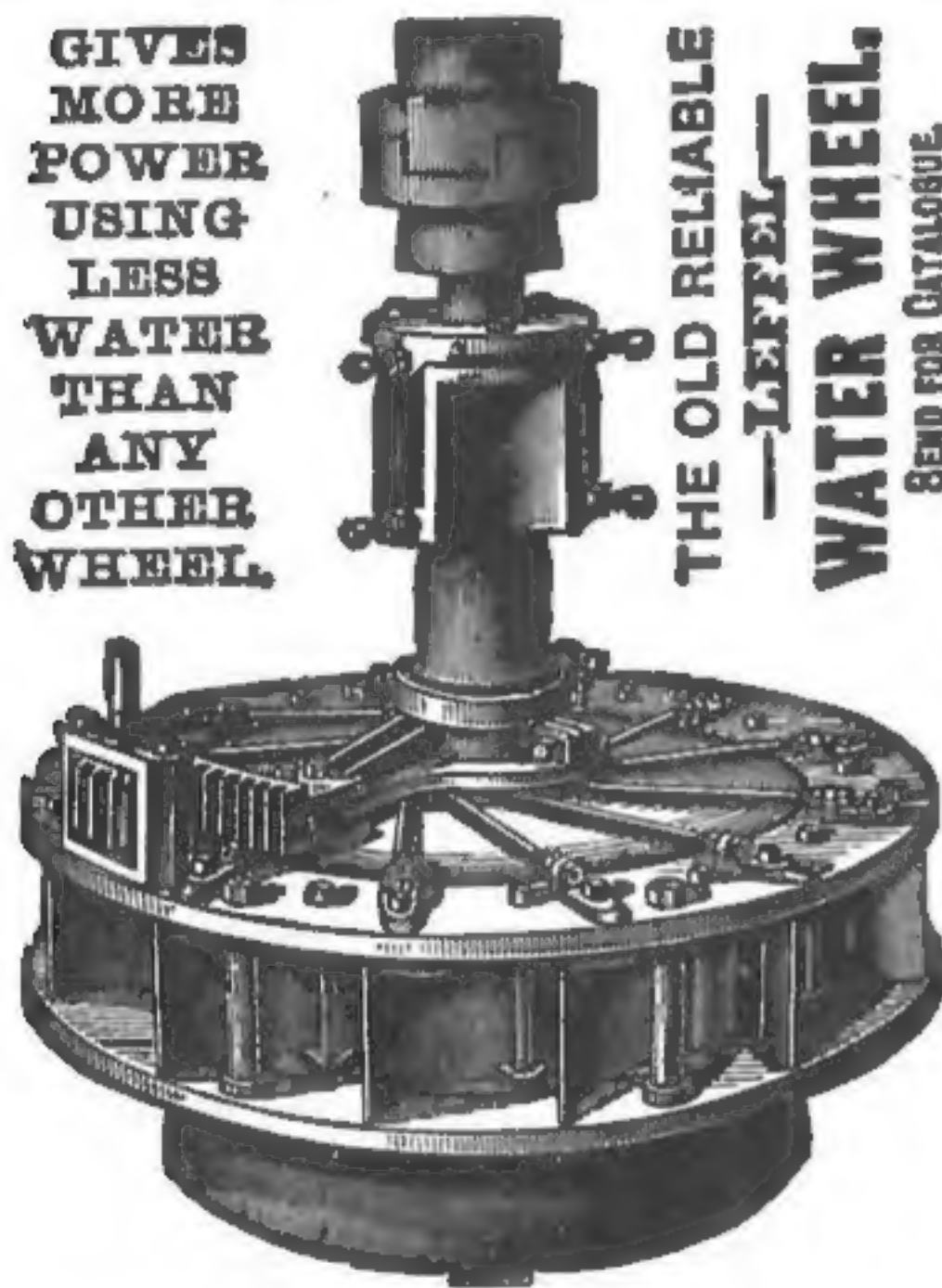
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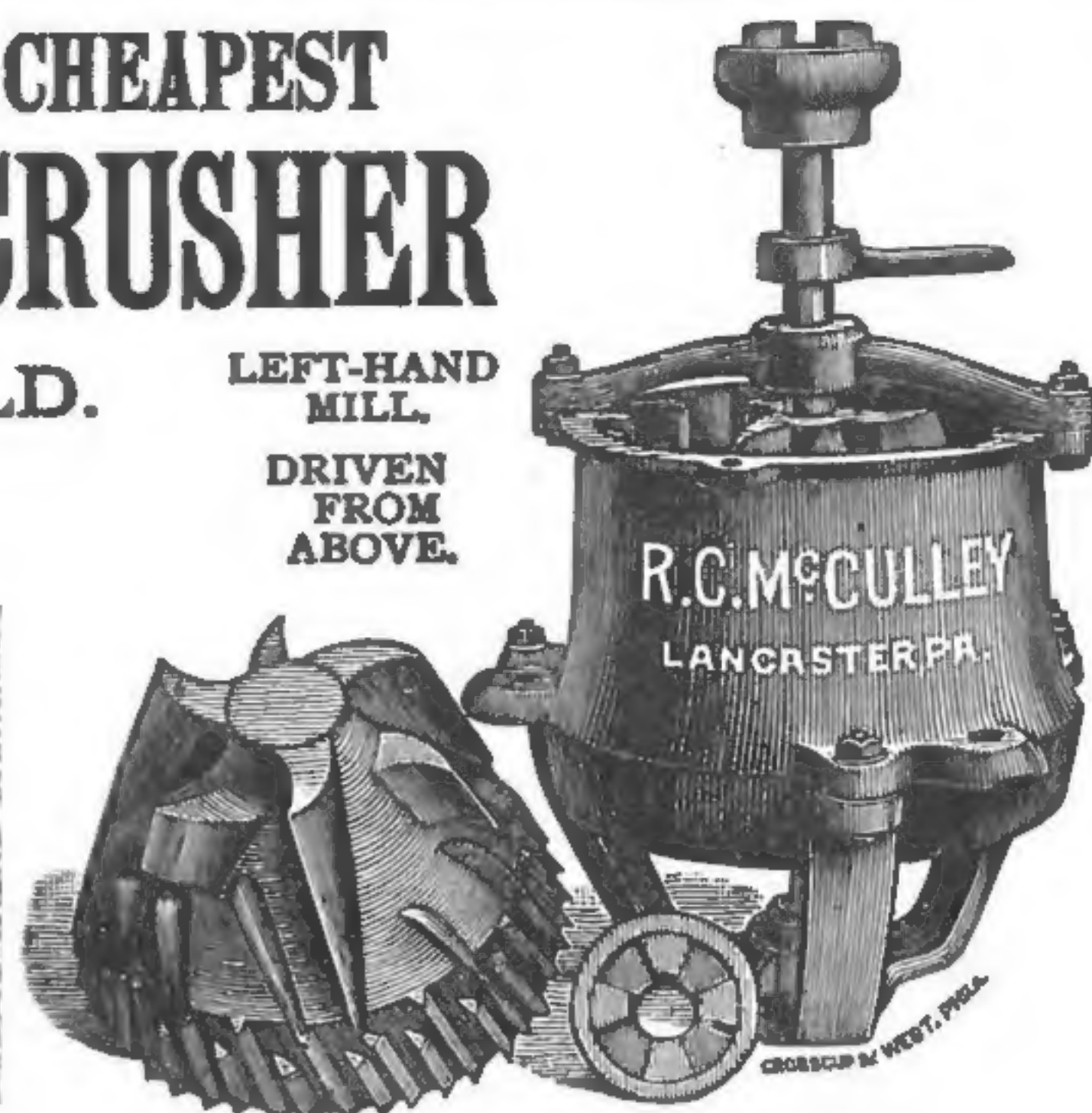
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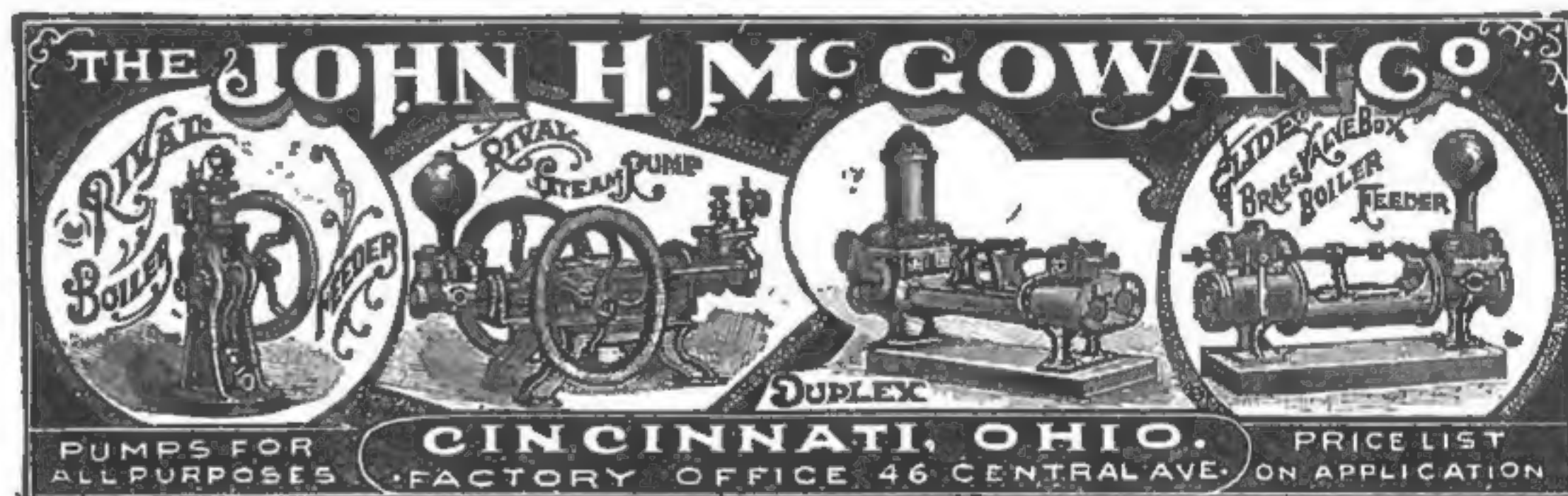
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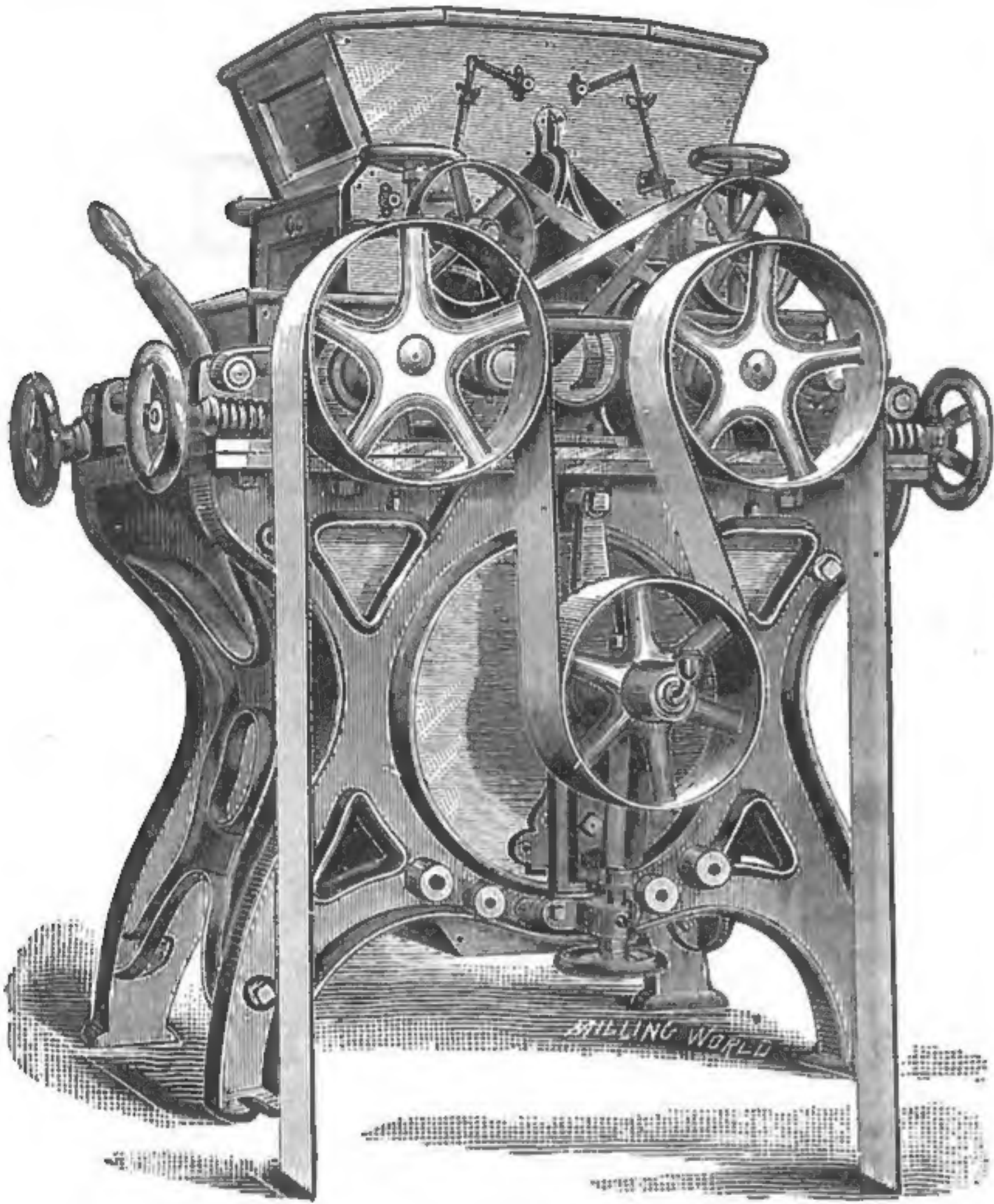
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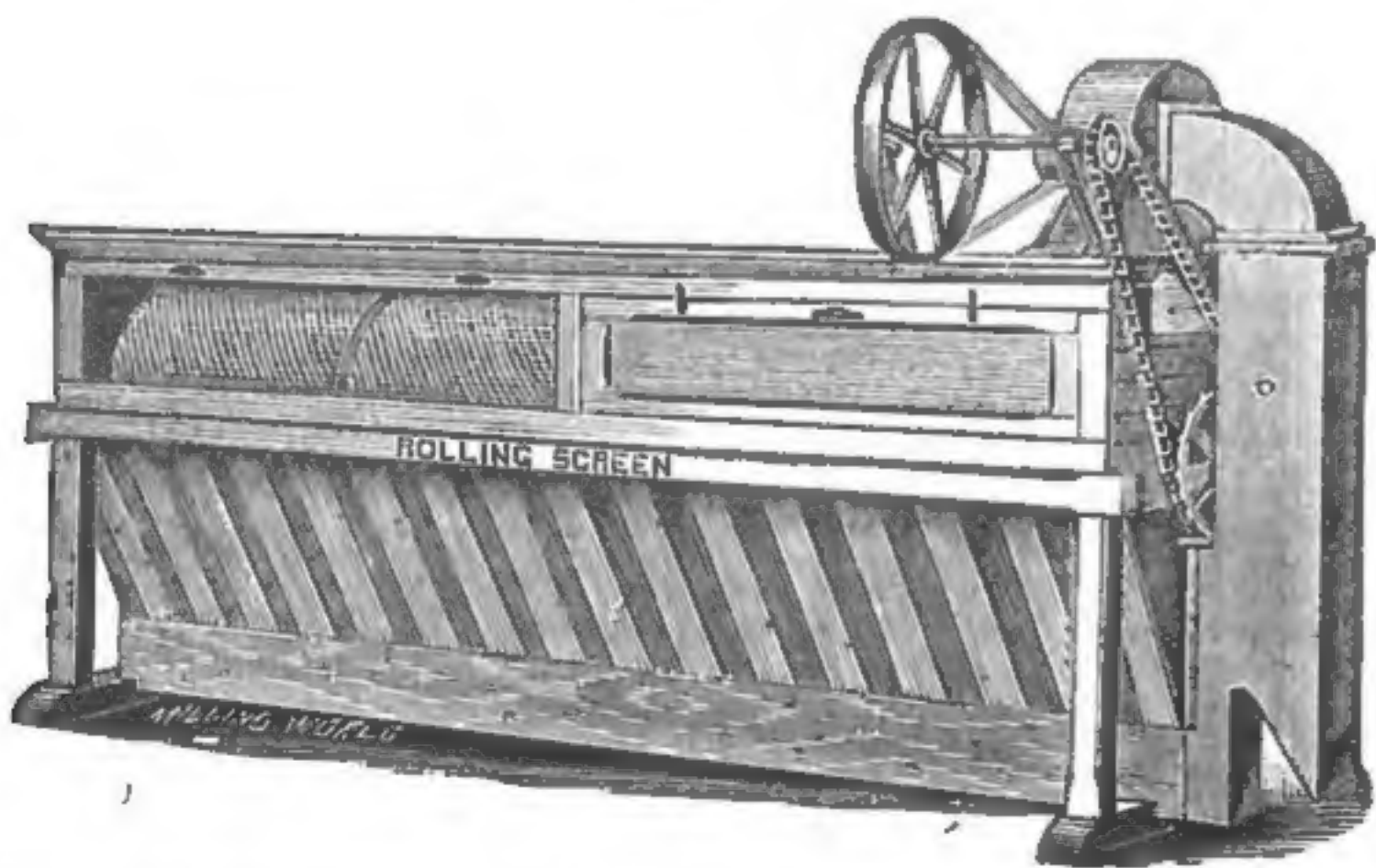
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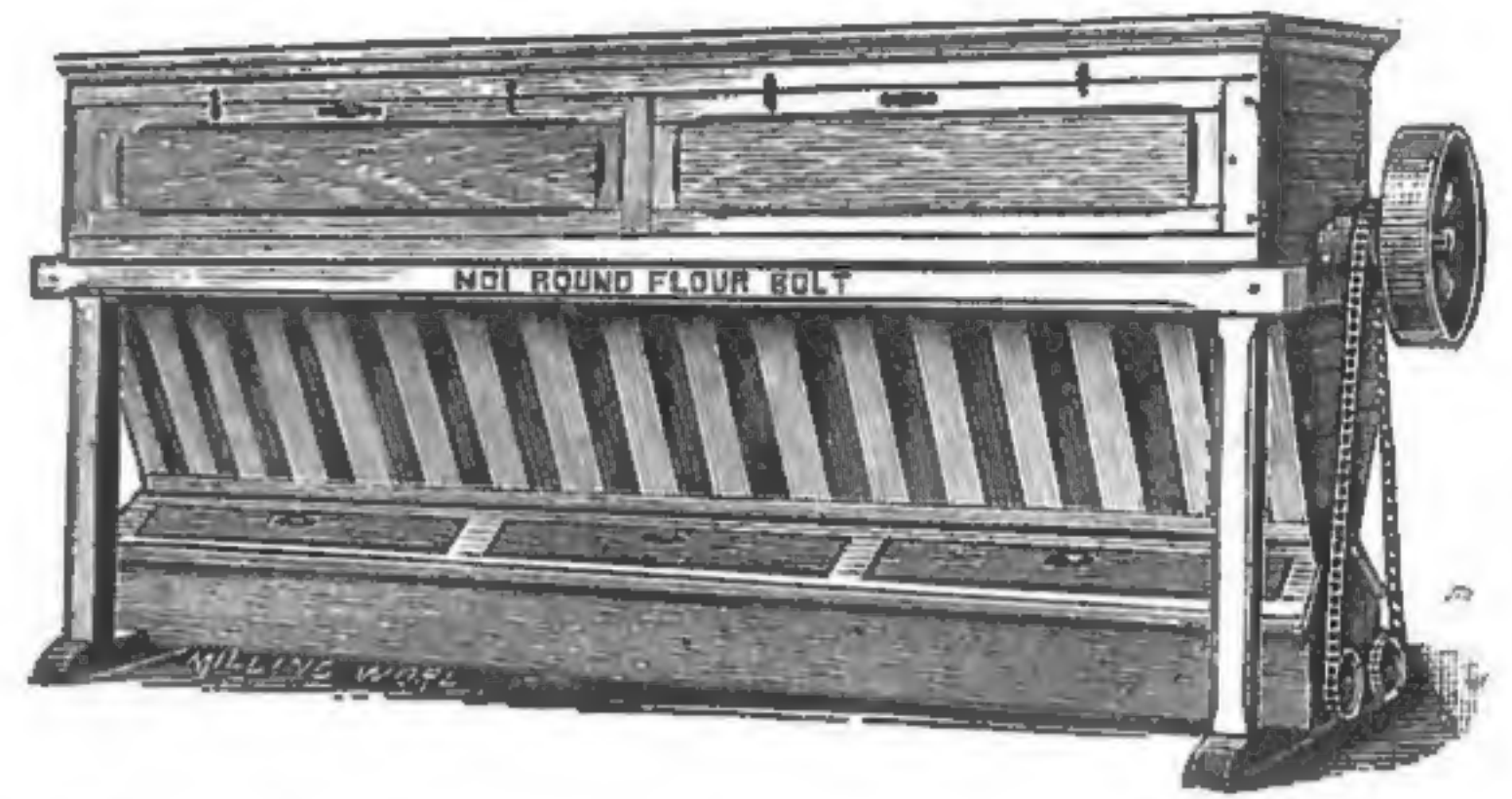
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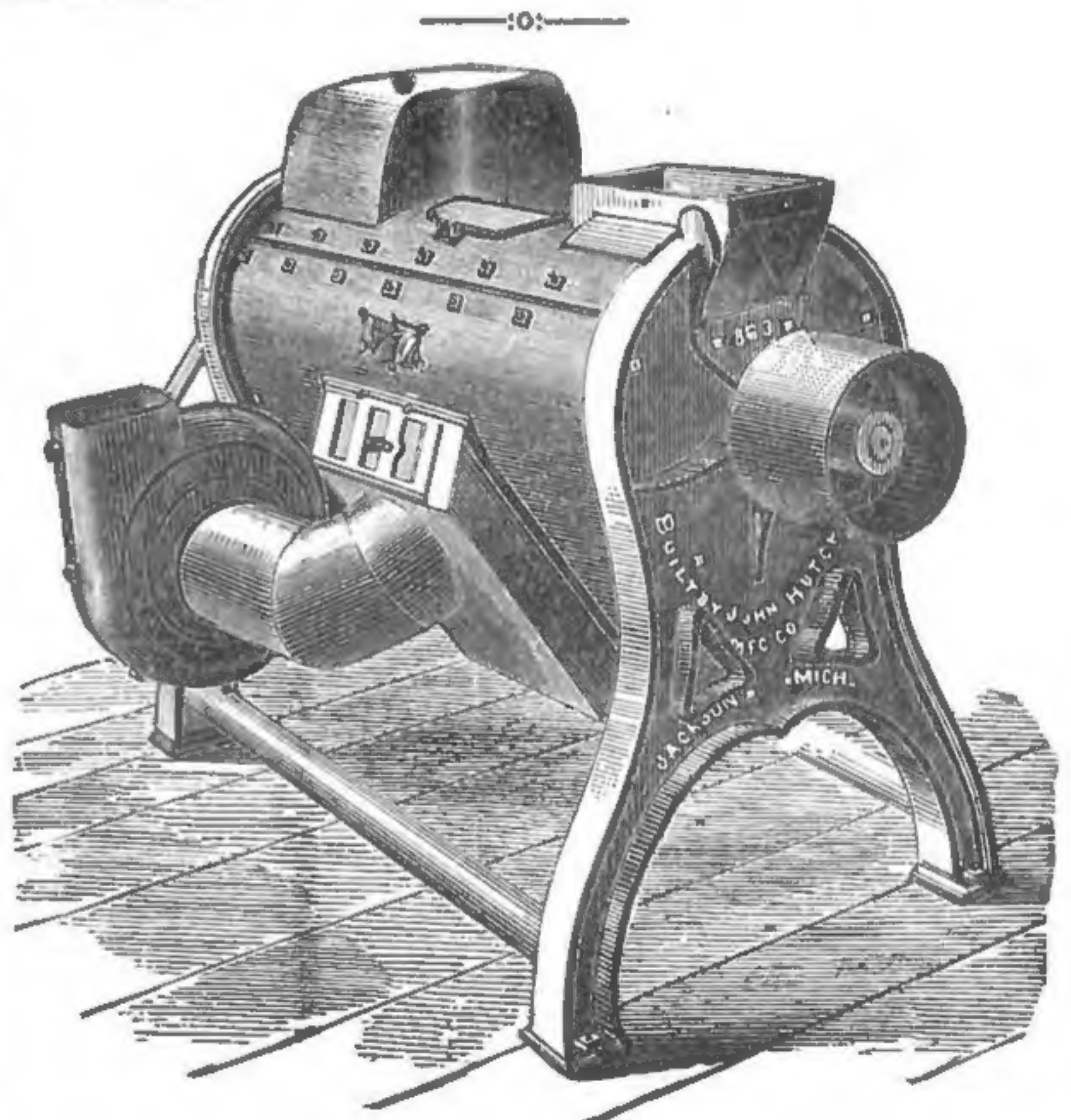


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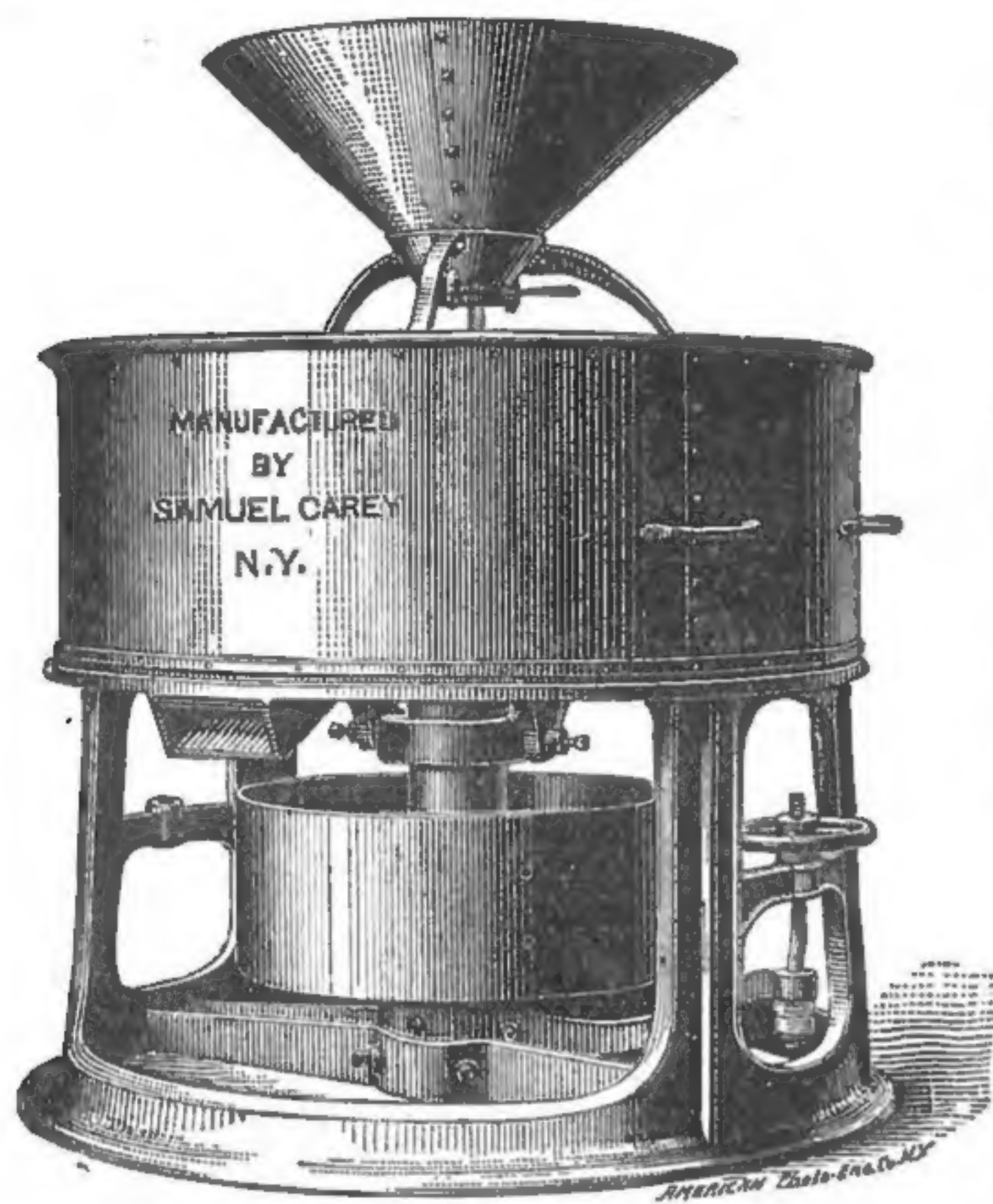
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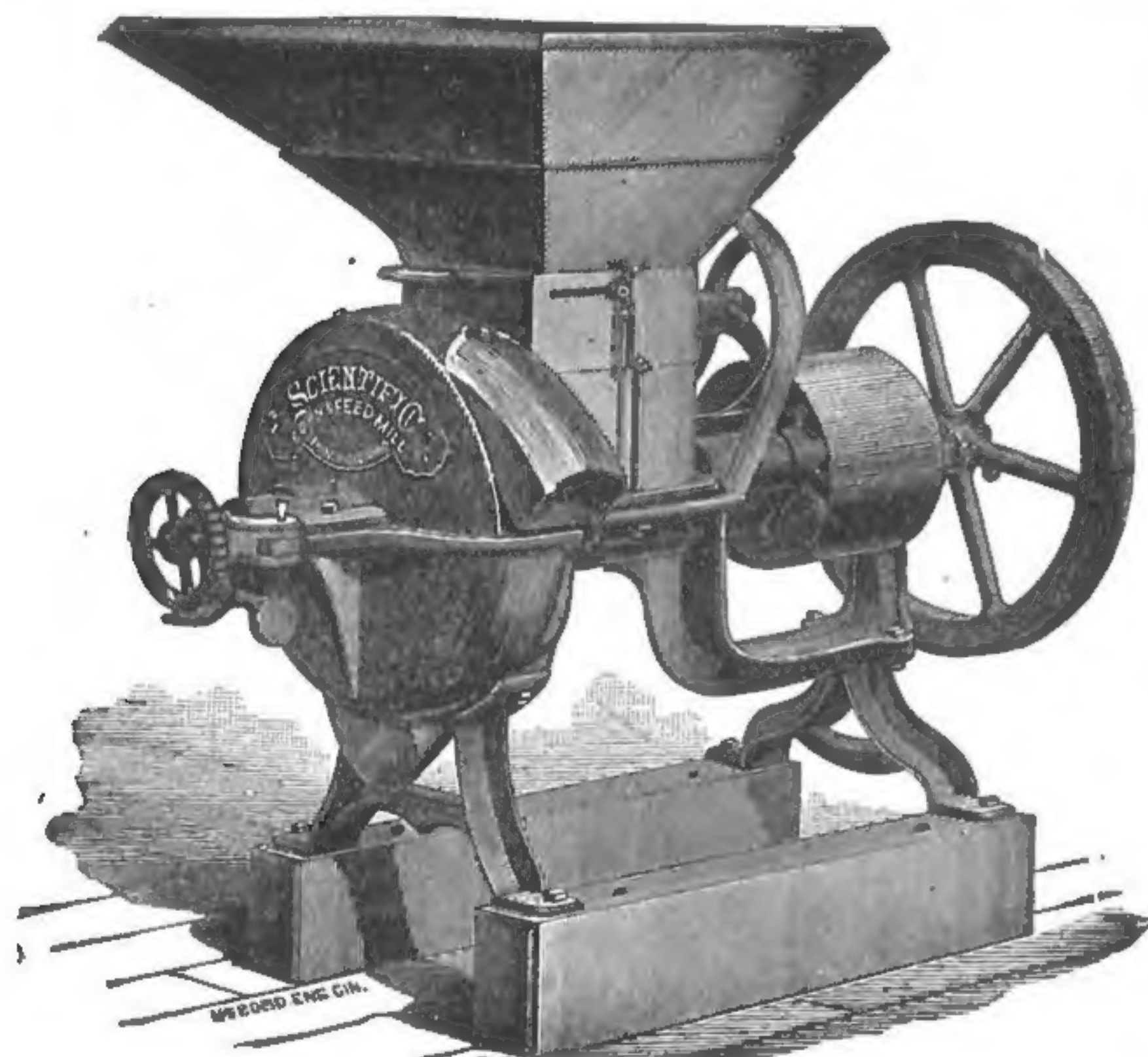
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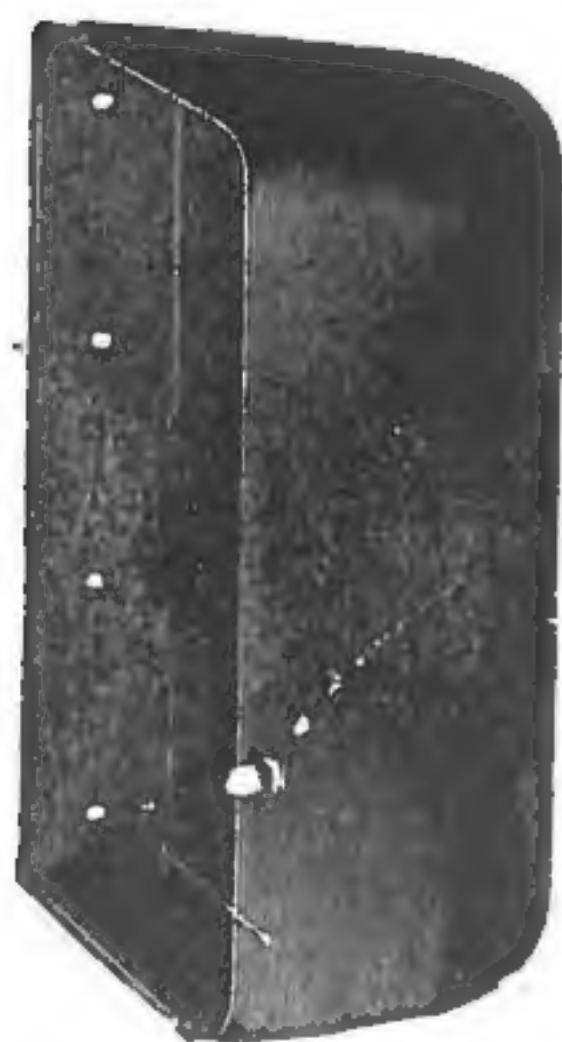
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